Independent Thematic Evaluation

Thematic Evaluation of UNIDO projects related to „Industrial Upgrading“

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO EVALUATION GROUP

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Abbreviations and acronyms

AGR	Agri-Business Development Branch
ASEAN	Association of Southeast Asian Nations
BDS	Business Development Services
BIT	Business, Investment and Technology Services Branch
CAFTA	Central American Free Trade Agreement
CBL	Cluster and Business Linkages
CDA	Cluster Development Agent
CE	Country Evaluations
CND	Cluster and Network Development
CSF	Country Service Frameworks
CUP	Competitiveness, Upgrading and Partnerships
ECOWAS	Economic Community Of West African States
EGM	Expert Group Meeting
EPA	Economic Partnership Agreement
EU	European Union
FAO	UN Food and Agriculture Organization
GEF	Global Environment Facility
GF	Global Forum
GVC	Global Value Chains
ILO	International Labour Organization
IMF	International Monetary Fund
IP	Integrated Programme
ITPO	Investment and Technology Promotion Office
ITU	Investment and Technology Promotion Unit
IU	Industrial Upgrading
IUEC	Initiative on Industrial Upgrading and Enterprise
KPI	Key Performance Indicators
LDC	Least Developed Countries
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MEA	Multilateral Environmental Agreements
ÖFSE	Austrian Research Foundation for International
PSD	Private Sector Development
PTC	Programme and Technical Cooperation
RCU	Regional Coordination Unit
RFQ	Requests For Quotations
SAARC	South Asian Association for Regional Cooperation

SADC	Southern African Development Community
SD	Systems Dynamics
SME	Small and Medium Sized Enterprise
SMTQ	Standard, Metrology, Testing and Quality
SPX	Subcontracting and Partnership Exchange
SSA	Sub Saharan Africa
TC	Technical Cooperation
TCB	Trade Capacity Building Branch
TE	Thematic Evaluation
TNC	Transnational Corporations
TOR	Terms of Reference
UEMOA	Union Economique et Monétaire Ouest Africaine (West African Economic and Monetary Union)
UNIDO	United Nations Industrial Development Organization
UR	UNIDO Representative
WTO	World Trade Organization

Glossary of evaluation-related terms

Term	Definition
Conclusions	Conclusions point out the factors of success and failure of the evaluated intervention, with special attention paid to the intended and unintended results and impacts, and more generally to any other strength or weakness. A conclusion draws on data collection and analyses undertaken, through a transparent chain of arguments.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.
Efficiency	A measure of how economic resources/inputs (funds, expertise, time, etc.) are converted to results.
Impacts	Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.
Indicator	Quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.
Institutional development impact	The extent to which an intervention improves or weakens the ability of a country or region to make more efficient, equitable, and sustainable use of its human, financial, and natural resources, for example through: (a) better definition, stability, transparency, enforceability and predictability of institutional arrangements and/or (b) better alignment of the mission and capacity of an organization with its mandate, which derives from these institutional arrangements. Such impacts can include intended and unintended effects of an action.
Lessons learned	Generalizations based on evaluation experiences with projects, programs, or policies that abstract from the specific circumstances to broader situations. Frequently, lessons highlight strengths or weaknesses in preparation, design, and implementation that affect performance, outcome, and impact.

Term	Definition
Logframe	Management tool used to improve the design of interventions, most often at the project level. It involves identifying strategic elements (inputs, outputs, outcomes, impact) and their causal relationships, indicators, and the assumptions or risks that may influence success and failure. It thus facilitates planning, execution and evaluation of a development intervention. Related term: results based management.
Outcome	The likely or achieved short-term and medium-term effects of an intervention's outputs. Related terms: result, outputs, impacts, effect.
Outputs	The products, capital goods and services which result from a development intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Recommendations	Proposals aimed at enhancing the effectiveness, quality, or efficiency of a development intervention; at redesigning the objectives; and/or at the reallocation of resources. Recommendations should be linked to conclusions.
Relevance	The extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies. Note: Retrospectively, the question of relevance often becomes a question as to whether the objectives of an intervention or its design are still appropriate given changed circumstances.
Results	The output, outcome or impact (intended or unintended, positive and/or negative) of a development intervention. Related terms: outcome, effect, impacts.
Sustainability	The continuation of benefits from a development intervention after major development assistance has been completed. The probability of continued long term benefits. The resilience to risk of the net benefit flows over time.

Executive Summary

Background

Industrial upgrading (IU) is widely recognized as an effective strategy for developing countries to respond to the profound changes of globalization. It is a common understanding that IU refers not only to firms but also the broader institutional and policy levels. Successful IU programmes need to go beyond productivity improvements (process upgrading) and encompass product innovation and quality (product upgrading), moving to functions with higher value added (functional upgrading) and diversifying buyers and markets (channel upgrading). IU is increasingly shaped by interactions between firms along global or regional value chains, most importantly by lead firms that govern these chains. Moreover, the social and environmental dimensions of IU have recently come to the fore.

Since the mid 1990s, UNIDO's "classical" IU programmes combine subsidized support to pilot firms with capacity development of business development service provider (BDS) and technical centres. UNIDO has successfully transferred this initially European approach to developing countries, particularly in North and West Africa. In the current context of increased donor interest in industrial development and the negotiations of Economic Partnership Agreements (EPA), new opportunities arise for UNIDO to expand its IU portfolio to other geographical areas. Since the launching of UNIDO's "Initiative for Upgrading and Enterprise Competitiveness" (IUEC) in 2010, it has been recognized that UNIDO's "classical" IU programmes can be successfully combined with other service modules of UNIDO, that often aim at similar "competitiveness" or "upgrading" objectives. In line with the TORs, this thematic evaluation (TE) has therefore adopted a wider definition of IU, including not only the "classical" IU programmes but also value chain and cluster-based IU programmes. The similarity of objectives and complementarities in tools can be the basis for important synergies and learning.

Evaluation

The TE has three objectives: (1) to develop an assessment framework and a generic intervention logic covering not only "classical" IU but also interventions that are based on value chains or clusters (i.e. SPX; automotive supplier development; AGR sector development; cluster development; export consortia); (2) to assess UNIDO's IU portfolio focusing on a sample of technical cooperation

(TC) projects dealing with firm-level upgrading; and (3) to make recommendations and inputs for further improvements of UNIDO's IU initiatives.

As other TEs, this TE did not conduct evaluations first hand but relied primarily on past evaluations. This has methodological implications as only projects with available evaluations could be included. Moreover, relying on past evaluations entails an important time lag, as certain findings may reflect past, rather than current practice.

The methodology and the evidence of this TE are based on the following interrelated components: (1) Desk review of programme level documents on IU, including guidelines, methodological guides and manuals; (2) Desk review of evaluation reports of a sample of 12 IU projects; (3) Interviews with most project managers of the sample IU projects and additional UNIDO staff involved in IU-related projects at UNIDO HQ; and (4) Results from two web-based surveys among beneficiary firms and a system dynamics (SD) modelling tool for a generic IU case.

The evaluation was conducted by Cornelia Staritz from the Austrian Research Foundation for International Development (ÖFSE) with contributions from Sophie Zimm (initial screening of the IU portfolio); Michaela Fleischer (web-based company surveys) and Sebastian Derwisch (SD modelling). The responsibility for overall management and quality control was with Peter Loewe (UNIDO Senior Evaluation Manager).

Conclusions and issues

The "classical" IU approach described in UNIDO's "Methodological Guide for IU" advocates a combination of micro, meso and macro level interventions (the latter largely understood as developing a national IU strategy). However, because of funding and other limitations, many "classical" IU projects remained limited to firm level interventions and the promotion of BDS consultants, while the attention given to institutional capacity building, access to finance and policy formulation has been variable.

In the UNIDO Integrated Programmes in Tunisia, Algeria and Egypt, specific attention was given to the linkage between upgrading of firms and upgrading of SMTQ institutions. This linkage became less effective in the more recent regional programmes in West Africa, where IU and SMTQ are being dealt with under separate programmes. More recently, the national programmes in Cameroon and the regional programme in Central Africa have again tried to overcome this separation between IU and the development of SMTQ institutions by putting both components under the roof of one overarching programme.

Regional programmes face specific challenges. Their multi-level decision making processes tend to be slow and there is an inherent tendency of regional programmes towards "one-size-fits-all". The evaluation of the UEMOA programme found frictions between the regional IU programme and national ones and concluded that there is a need for a better definition of the regional dimension of IU as opposed to the national one. There is evidence that firm-level interventions should not be conducted from the regional level and that the "subsidiarity principle" should be applied more thoroughly.

Tailoring the IU approach to variable country conditions has been challenging, in particular in regional IU programmes. The UEMOA programme tried to address this challenge by conducting country studies but the identification of "priority products" for each country did not have a major influence on programme implementation. More recently, the EU Delegation responsible for the forthcoming IU programme in Central Africa has challenged the "blue print" approach of the classical IU projects and insisted that thorough and in-depth adaptations to the specific conditions of each participating country be made.

There have been some valuable but isolated attempts to build IU projects on aggregate economic analysis such as the sectoral business plan of the leather programme in Ethiopia or the use of the UNIDO "competitiveness analysis" for designing the IU programme in Palestine. However, in the absence of an agreed analytical assessment framework and decision making tools to configure and design IU interventions for specific national and sector contexts, the different IU service modules are often used in a supply driven manner.

The "Initiative for Upgrading and Enterprise Competitiveness" (IUEC) of 2010/11 made an attempt to develop *"a comprehensive and integrated approach based on a composite package of UNIDO tools and programmes covering the full range of technical services that form the IU Initiative"*. The thematic evaluation found that this has not been consistently applied and that there is potential to increase the use of cross-organisational expertise. However, there are promising cases where "classical" IU has been combined with SPX (Cameroon), with export consortia (Côte d'Ivoire) and with cleaner production (Senegal).

IU projects of UNIDO often focus on export capacity building, however not always taking advantage of the opportunities of local and regional markets. The leather programme in Ethiopia provides evidence that exporting firms benefit from a strong position on the local market. Other positive examples in this regard are SPX and automotive supplier development projects that also focus on internal

markets and local suppliers and subcontracting potentials and link up with local procurement and local content policies (for example in South Africa).

Access to finance is a critical dimension of IU but many evaluations found that this dimension remained largely theoretical. In practice, the issue has been dealt with primarily by providing subsidies to beneficiary firms through "upgrading funds". Making such funds work effectively has been challenging. Many firms that applied for subsidies complained about delays and bureaucratic burden. Some projects facilitated linkages with banks, most successfully in Senegal. The UEMOA programme conducted studies in all participating countries about existing financial support schemes and how linkages with these schemes could be established. However, the findings of these studies were not implemented.

Firm-level interventions are at the heart of IU projects. Evaluations found that assuring flexibility and management ownership are critical for such interventions. The inherent limitations of firm-level interventions need to be recognized in order to avoid "lifting up" some randomly selected individual firms, which is insufficient to reach systemic impact. Such a limited understanding of firm-level interventions has, however, been observed in some "classical" IU projects.

Many IU projects are labelled as "pilot" interventions but dissemination of learning from the pilots was often not an explicit part of the design. Moreover, pilots were not given the means to experiment with different methods, monitor results, compare and evaluate their relative strengths and weaknesses and stress the "demonstrative" nature of the action before extending the coverage and scale of objectives and actions. The synergies and coherence between the pilot initiatives and the upstream activities to replicate and mainstream the activities in local institutions and government policies are essential for the sustainable impact of IU interventions, but are often not explicit.

UNIDO has been successful with positioning firm level interventions at the core of its IU programmes. However, such interventions call for solid justification. The official rationale has been "demonstration" and "upscaling" of "pilot" interventions. But, more recently, discussions have intensified at UNIDO about revisiting the IU rationale in the light of "new structural economics". This would entail privileged action on firms with strong development potential as well as learning potential for other firms and lessons on a larger scale. Such a modernization of the IU approach could be promising but it remains to be seen to what extend such changes would be compatible with the established practice of selecting pilot firms by calls for expressions of interest and with WTO rules.

IU interventions encompass institutional capacity building but also building the capacities of local consultants. The latter has been a major area of intervention but often without a clear strategy of developing sustainable BDS markets which should be the final outcome of such capacity building. Analysis of existing BDS providers and markets and the embedding of UNIDO projects in these structures are often not sufficiently included in UNIDO IU interventions.

Most IU initiatives have economic growth, employment creation and particularly poverty reduction as development objectives. However, the causal chain models from the output level towards development objectives often lack rigour and come without the necessary assumptions and measurable indicators. UNIDO's monitoring tends to focus on outputs making it difficult to evaluate outcomes, in particular longer term replication and institutional and policy-level outcomes. This TE has developed generic intervention logic for IU interventions with a specific focus on poverty impact. It also offers reflections on some practical experience with systems dynamics (SD) modelling as an innovative alternative to the conventional causal chain modelling.

IU demands contributions from many parties, not only inside but also outside the UNIDO mandate. Taking into account the "big picture" and is therefore key. It has been recognized that, as a UN agency, UNIDO could have a specific competitive advantage to act as an "honest broker" and facilitate interaction between relevant actors of the private and public sectors, as well as donors. UNIDO was often found not to strive for such a facilitating role; on the contrary, there is often no good overview of and limited coordination with national programmes and donors' interventions. To understand, highlight and simulate the multi-actor dynamics of IU interventions and identify critical assumptions for impact the SD modelling experimented under this TE could also be a possible innovative tool for scenario building, facilitation and learning.

Recommendations[1]

1. UNIDO should follow up and enforce the implementation of its "Initiative for Upgrading and Enterprise Competitiveness" (IUEC) launched in 2010/11.
2. UNIDO should develop an overarching analytical framework capturing the key determinants of competitiveness and industrial development as well as mapping already existing IU related policies and interventions.
3. UNIDO should improve the M&E systems and define generic outputs, outcomes and impacts of IU as well as a common system of KPI. Such tools

[1] See chapter 9 for a more detailed version of the recommendations.

should also emphasize development objectives and include the identification of unintended negative results.

4. UNIDO should revisit the rationale for firm level interventions to ensure systemic impact and structural change in the light of the "new structural economics" paradigm.
5. UNIDO should design its so called "pilot" interventions more rigorously. They must be given the means to experiment with different methods, compare and evaluate their relative strengths and weaknesses before scaling up.
6. UNIDO should adopt a more market based approach for strengthening business developing services (BDS).
7. UNIDO should spend greater efforts on facilitating firms' access to finance. Cooperation and strategic partnership with working directly with financial institutions in partner countries is recommended.
8. UNIDO should clarify the rationale for intervening at regional level and ensure complementarity of regional and national IU programmes.
9. UNIDO should complement its focus on export promotion with policy measures aiming to develop local and regional markets and create awareness among governments how public procurement and local content policies can be combined with IU interventions.
10. UNIDO should strengthen the prospects of IU interventions to produce impact on poverty reduction, gender equality and other social issues.
11. UNIDO should develop its competitive advantage as a "honest broker" and strive for a role as a facilitator. UNIDO's IU initiatives should stress the importance of external coordination, links to national level policies and programmes, and the involvement of the private sector.

1. Introduction

The present thematic evaluation (TE) has been conducted in line with the TORs provided in Annex A. It pursues three main objectives: (1) to develop an assessment framework for UNIDO industrial upgrading (IU) initiatives, including a generic intervention logic and evaluation questions; (2) to assess UNIDO's IU portfolio focusing on a sample of technical cooperation (TC) projects dealing with firm-level upgrading; and (3) to identify recommendations and provide inputs for discussions for further improvements of UNIDO's IU initiatives.

In line with the TORs, the evaluation looks at IU from a broader perspective and includes not only the "classical" IU upgrading projects but also value chain and sector based IU and cluster projects that often involve similar objectives and approaches even though the concepts and tools used differ.

As usual for TEs, and in line with the TORs, this evaluation relies primarily on past project evaluations. This has implications on the sample selection as only projects with available evaluations could be included and not necessarily projects that would best represent the different types of IU initiatives. Moreover, relying on past evaluations entails an important time lag, as some of the findings may be based on past, rather than current practice. Further, evaluation reports often provided only limited information on impact in terms of contributions to employment or poverty reduction.

The evaluator and the responsible evaluation manager at the UNIDO Evaluation Group decided to address these limitations by a number of corrective measures. Two web surveys among beneficiary firms were conducted to collect up-to-date and first-hand information about firm-level impact. To triangulate findings emerging from the comparative analysis, the evaluator conducted a fair number of interviews with project managers and other UNIDO staff. Several ongoing project evaluations were included in the course of the evaluation, such as the country evaluation in South Africa; the evaluation of projects in the leather sector of Ethiopia; the cluster twinning projects evaluations in India and Vietnam; and the thematic evaluation of UNIDO's regional TCB programmes in West Africa. A stocktaking and feedback workshop was held in November 2011.[2] And an experimental system dynamics (SD) modelling tool was developed to complement

[2] See list of participants in Annex C

standard causal chain analyses and support the discussions with UNIDO staff about typical feedback loops and impact mechanisms of IU interventions. The price to pay for these corrective measures was an extended duration of the evaluation process of about one year.

The sample of 12 IU projects spreads over 17 countries:

- IP or CSF Tunisia, Algeria, Egypt, Senegal and Syria
- UEMOA IU programme (Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo)
- SPX South Africa
- Automotive supplier development India and South Africa
- Leather sector Ethiopia
- Clusters India and Vietnam

This report is structured in the following way: Section 2 and 3 give an overview of the broader context of this evaluation and conceptual approaches to and dimensions of IU that are relevant for UNIDO's IU portfolio. Section 4 develops an assessment framework for UNIDO's IU initiatives, including the classification of different UNIDO IU initiatives and the development of an intervention logic and evaluation questions. The next section discusses the main characteristics of the different types of IU projects along with a first assessment organized along the types of projects (section 5). Section 6 provide an assessment focusing on issues relevant for the UNIDO IU programme as a whole organized along the main evaluation criteria. Section 7 discusses the potential role of SD modelling in the context of evaluations as a way to cope with complexity. The last two sections identify conclusions and recommendations for further improvements of UNIDO's IU initiatives (section 8 and 9).

The evaluation was conducted by Cornelia Staritz from the Austrian Research Foundation for International Development (ÖFSE) with contributions from Sophie Zimm (initial screening of the IU portfolio); Michaela Fleischer (web-based company surveys) and Sebastian Derwisch (SD modelling). The responsibility for overall management and quality control was with Peter Loewe (UNIDO Senior Evaluation Manager).

2. Broader Context of Evaluation

The global economy has undergone profound changes in the last three decades in the context of globalization that have led to growing integration and have affected the organization of production at the global and local level. Changes in communications, transportation, technology and most importantly government policies (trade liberalization and shift from import-substitution to export-oriented development strategies) and corporate strategies (focus on core competencies and vertical disintegration) have led to a significant change in the industrial organization across a variety of sectors since the 1970s.

The contemporary economy is increasingly structured around global value chains (GVCs) that encompass the full range of activities that are required to bring a good or service from its conception, through the different phases of production, to the final consumers, including activities such as design, production, marketing, distribution and support services. The activities that compose a value chain can be locally based but in the context of globalization, they are often carried out in inter-firm networks on a global or regional scale (Gereffi 1994; Gereffi/Kaplinsky 2001; Kaplinsky/Morris 2001; Gibbon/Ponte 2005; Staritz et al. 2011).

These changes provide opportunities and threats for developing countries. Opportunities relate to gaining access to external markets, economies of scale and scope and technological learning as well as to accessing competitive imports for local or export production. The extension of GVCs and the off-shoring and outsourcing of production from high income country firms have often provided a stepping stone for developing country firms to integrate into the global economy and contributed to the important increase in productive capacities in developing countries in the last three decades. However, these changes have also heightened competition, in both external and domestic markets.

The shift to export-oriented development models by an increasing number of developing countries and particularly the export share of large emerging countries such as China and India have made external markets very competitive complicating export-led development of lesser developed countries (Kaplinsky 2005; UNIDO 2009).

Notably, globalization also affects the position of firms in their traditional domestic markets. Widespread liberalization has increased competition through

imports and has made import-substitution industrialization strategies or other ways of protecting and supporting local productive capacities more difficult (Morris et al. 2012).

Hence, industrial and broader development policies face a very different policy and economic environment today than three decades ago. To take advantage of the opportunities and to minimize the dangers resulting from this global environment firms and countries need to increase competitiveness which involves upgrading of their productive capacities and industrial structures (Kaplinsky/Morris 2001).

Cost competitiveness is a necessary but not a sufficient and sustainable factor for competitiveness that increasingly involves fulfilling high requirements with regard to quality, lead times and flexibility, complexity of products and standards, and broader functions. This is particularly relevant in least developed countries (LDCs) that have limited productive structures and capacity and face a variety of supply side constraints.

These profound contextual changes have also triggered a wider understanding of the "Industrial Upgrading" (IU) concept. Most generally, IU refers to improved economic competitiveness by improving productivity or economic performance and by moving from lower value to higher value activities to increase the benefits (e.g. security, profits, value-added, capabilities) from participating in global, regional or domestic production (Bair/Gereffi 2003; see section 3 for a detailed discussion of IU and its different dimensions).

IU strategies have become imperative in many industries to remain competitive, improve the position in the international hierarchy of value-added activities, and to secure rewards. Firms are at the core of such upgrading processes as they are the ones that ultimately have to implement the necessary changes, not only in industrial production but also in management, marketing and product innovation. But this prominent role of firms needs to be complemented by upgrading or improvement processes at the broader industry, institutional and policy level have a critical role to enable and strengthen firm-level IU.

IU takes place in a dynamic environment and in ever changing global contexts. Two challenges are of particular importance today for decision-makers concerned with the role which IU may play in promoting broader development (Kaplinsky 2011).

The first is adjusting to a world in which the primary drivers in global production and trade are no more industrialized countries only but increasingly large

emerging and developing economies. In the last decade, and accelerated by the global economic crisis, sustained growth in emerging countries, in particular in the two large economies of China and India, have spurred a shift in the primary drivers of trade and growth (Farooki/Kaplinsky 2011). This shift has crucial implications for global demand and structures of production and may on the one hand facilitate access to investment, new markets and GVCs for less developed firms and countries but on the other hand also reduce IU possibilities given the different nature of demand in emerging country end markets (Cattaneo et al. 2010; Staritz et al. 2011). Related to this shift, regional and domestic markets have also increased in importance.

The second and more crucial challenge is reacting to the persistence of absolute and relative poverty and increasing inequality in the global economy. Although large parts of the developing world have experienced economic growth rates in the last decade, poverty has persisted and in cases increased and inequality has more broadly been on the rise. For UNIDO as the UN System's custodian for inclusive industrial growth it is therefore a crucial challenge how to ensure that industrial development and economic growth provide inclusive and pro-poor outcomes in terms of national economic development, employment generation, decent work and poverty reduction.

IU has become a cornerstone of development strategies in many developing countries and international and regional institutions alike, particularly in the last two decades. This is closely related to the increasing importance of private sector development (PSD) in development approaches which stresses the important role of the private sector in furthering economic development, generating employment and reducing poverty. Approaches to PSD have evolved in the last three decades from a focus on finance and support services for individual firms in the 1980s to a focus on market development of business development services (BDS), microfinance and the overall business environment in the 1990s leading to programmes aiming to improve the business climate through regulatory reforms and enhancing market functioning (UNIDO 2010a).

Linkages between firms and to private and public support institutions in the context of networks and clusters and the broader concept of value chains have increased in importance since the late 1990s. More recently, with the emergence of "new structural economics" and industrial policies regaining prominence given the success of China and other emerging economies in expanding manufacturing and enhancing economic growth rates over the past two decades, PSD and IU will

probably again become more embedded in broader industrial policies and strategies.

UNIDO is a forerunner with regard to IU initiatives as it started to adapt the IU concept to the developing world and to initiate comprehensive IU programmes in the mid 1990s. Since then UNIDO has designed and implemented different types of IU projects and developed and extended its approach to IU. The demand from client countries has increased continuously in this area, including middle-income but increasingly low-income countries.

Currently, there are important new opportunities for UNIDO to expand its IU activities that are generally related to the re-emergence of industrial policies on the development and PSD agenda and specifically to the Economic Partnership Agreement (EPA) negotiations between the EU and Sub-Saharan African (SSA) countries. EPAs are linked to upgrading programmes with UNIDO being the implementing agency. Also in the context of Aid for Trade, IU interventions have increased in importance.

3. Conceptual Approaches to and Dimensions of IU

There are different approaches and dimensions of IU that are relevant for UNIDO's IU initiatives. Three approaches from the strategic management and innovation literature, the regional economics and cluster literature, and the GVC literature are highlighted in this section as they have had an important role in the development of the IU concept and provide insight for the conceptualization and design of IU initiatives. Besides the firm and industry level, IU also involves the broader policy level and newer dimensions such as social and environmental upgrading. After an overview of these approaches and dimensions of IU, main conclusions of this conceptual discussion relevant for UNIDO's IU approach and programmes are identified.

3.1 Conceptual approaches to IU

Strategic management and innovation perspective: Firms are at the heart of the IU process and the key challenge is to devise strategies that further and sustain firms' competitive advantages over other firms. In this line of thinking firms should focus on activities that deliver value to customers, are relatively rare in the sense that few competitors possess them, and are difficult to imitate, that is, where there are barriers to entry. The capacity to innovate is based on the concentration on core competencies (Prahald/Hamel 1990). These capabilities can be developed from resources that are valuable, rare, in-imitable, and non-substitutable (Teece et al. 1997). It is further underlined that capabilities must be dynamic; otherwise firms' competitive advantages might become rigid. Hence, this approach to IU focuses on the development of firms' competitive advantages based on core-competencies and dynamic capabilities (Kaplinsky/Morris 2001; Kaplinsky et al. 2009).

Regional economics and cluster perspective: The regional economics and cluster literature focuses on the interactions among firms and between firms and their institutional environment. In this perspective regions and their specific assets play a key role in economic development (Piore/Sabel 1984; Porter 1990; Scott/Storper 2003). Firms that are part of networks and clusters are able to improve productivity and performance and overcome obstacles resulting from isolation and reach collaborative efficiency through the (complex) equilibrium between

competition and cooperation (Schmitz 1995). Main benefits of this are economies of scale and scope, benefits of agglomeration, joint efficiency and joint actions. Hence, this approach to IU focuses on the importance of inter-firm linkages - horizontal and vertical ones - and the role of local institutions and support service providers.

GVC perspective: The GVC literature brings another dimension to IU, namely the role of inter-firm networks along value chains and particularly the important role of lead firms in these networks. In the GVC literature IU was initially discussed at the national level in the context of industrial development strategies based on import substitution or export orientation. Upgrading was used to describe the development trajectories of countries and regions as they seek to change their role in the international hierarchy of value-added activities by traversing different export roles - from primary commodity exports to basic assembly subcontracting towards a more complex bundle of activities, including logistics and design functions (Gereffi 1994). The focus subsequently shifted towards organizational dimensions at the industry and particularly firm level to analyze the position and capabilities of firms in value chains. Humphrey and Schmitz (2001, 2002) proposed an influential fourfold upgrading classification focusing on the firm level that is widely used in GVC analysis:

- *Functional upgrading* as reflecting the initial ideas that an improvement in the position of firms would result from increasing the range of functions performed or a change in the mix of functions performed towards higher value tasks;
- *Process upgrading* as yielding efficiency gains by reorganizing the production system or introducing new technologies;
- *Product upgrading* as moving into more sophisticated product lines; and
- *Chain upgrading* as using the capabilities acquired in one chain to be capitalized in another more technologically advanced but often related chain.

In the GVC literature it is stressed that upgrading processes are shaped by the type of value chain and in particular by the respective governance structure. Governance structures determine the power relationships among the different actors and the flow and allocation of resources within chains. These structures are crucially influenced by lead firms - i.e., the firms that coordinate and govern GVCs composing manufacturers, retailers and brand marketers - by establishing

product specifications, technical standards, and broad cost and performance structures according to which a global industry operates (UNIDO 2011a).

Lead firm governance strategies can both enable and constrain upgrading prospects of suppliers. Despite important sector, country and firm differences, lead firms are generally more supportive in process and product upgrading that leads to more efficient and higher quality production in their value chains. Functional upgrading may be blocked when it encroaches on the core competencies of lead firms, which are activities with high returns and entry barriers (Kaplinsky/Morris 2001; Kaplinsky 2005).

These three approaches to IU complement each other in important ways. The first approach focuses on firm competencies and capabilities and stresses the dynamic nature of IU processes. This approach is especially helpful in identifying those factors that arise from the activities of a firm itself and drive or facilitate product and process improvements. But a problem of this approach is that it looks at the firm only, and fails to capture upgrading processes which are systemic in nature and which involve groups of firms linked together (Kaplinsky et al. 2009). This is where the later two approaches come in that both stress the importance of relations and interactions between firms and the wider institutional environment.

The cluster approach focuses principally on linkages and interactions between local firms and institutions stressing joint efficiency and particularly horizontal collaboration. Cluster approaches however often overlook global dynamics and the relations to firms and institutions outside of the local environment. The GVC approach incorporates important insights into these global relationships and into the role of actors and factors external to cluster - particularly relationships between local firms, industries and clusters with lead firms that structure their access to markets (Gereffi et al. 2005). In this regard the value chain framework aims at understanding the systemic upgrading challenge by stressing that competitiveness is defined not only by the actions of an individual firm, but also by the suppliers and buyers who ultimately deliver the product to the final customer and in particular by lead firms that have a critical role in enhancing systemic chain competitiveness (Kaplinsky et al. 2009).

Table 1 gives an overview of these three approaches to IU.

Table 1: Overview of main conceptual IU approaches

	Innovation perspective	**Cluster-based perspective**	**GVC-based perspective**
Theoretical orientation	Strategic management and innovation literature	Regional economics, networking and cluster approaches	Organizational approach
Unit of analysis	Firm-level	Network or cluster of local firms	Production networks "controlled" by lead firms
Key concepts	Core competencies, dynamic capabilities	Horizontal linkages between firms and firms and supporting institutions, cooperation	Governance, upgrading, international standards
Geographical scope	Studies focused on industrialized country firms	Local level, geographically concentrated production of related goods and services	Multi-scalar framework, geographically dispersed production of intermediate goods and final products
Approach to industrial upgrading	Dynamic core competencies, captures process and product upgrading	Horizontal competitiveness and cooperation	Systemic competitiveness, value chain alignment, captures process, product, functional and chain upgrading

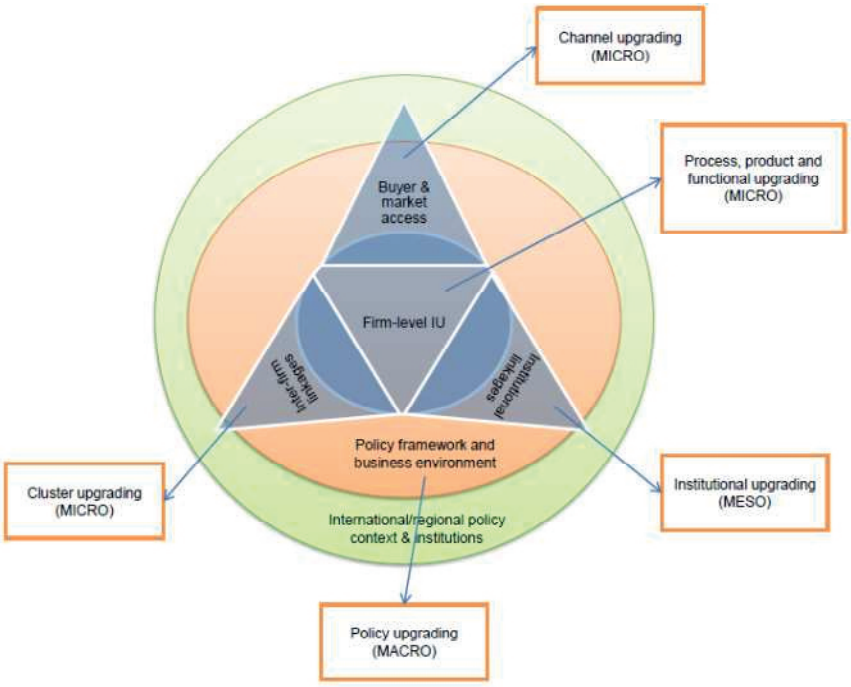
Source: Author's illustration.

3.2 Dimensions of IU

Micro, meso and macro levels of upgrading: IU can be conceptualized as involving different dimensions that interact with each other. Figure 1 illustrates these interactions. At the centre of IU are firm-level (micro) interventions that may focus on improving processes, including production, management and organisational processes (process upgrading) and developing more sophisticated, higher quality products (product upgrading) that both involve changes in price, quality, reliability, lead time and flexibility as well as increasing the functions performed by firms or shifting to higher-value activities (functional upgrading). Two further types of upgrading can be added at the firm-level – accessing and diversifying end markets and buyers (channel upgrading) and developing linkages with other firms (cluster upgrading). These firm level interventions depend and

interact however with other actors and their strategies. Important roles are played by lead firms and buyers in end markets that determine market access, performance requirements and standards (buyer and market access) and other firms with which the firm has vertical (e.g. suppliers, service providers) and horizontal (e.g. subcontractors) linkages that can be loosely organized or part of clusters (inter-firm linkages).

Figure 1: Main dimensions of IU[3]



Source: Author's illustration.

Liberal vs. interventionist industrial policies: Government efforts to promote IU can range from "liberal" approaches to "interventionist" development strategies. The former approach focuses on facilitating private business activity without direct interference in inter-firm relationships or markets by improving infrastructure and the investment climate, reducing regulatory burdens, and providing tax or financial incentives.

[3] The concept of upgrading is in some contexts solely used for firm and industry level processes whereas improvements at the meso and macro level are not referred to as (institutional or policy) upgrading but as „improvements". The main point is that firm- and industry-level upgrading efforts require complementary, more systemic efforts at the meso and macro level – may they be called improvements or upgrading.

Interventionist approaches stress the existence of market failures and more directly shape the economy by interfering with markets, pursuing industrial policies or being directly involved in production activities (Amsden 1989; Chang 2004). These interventions are based on the assessment that markets do not always work as expected in the standard paradigm of free competition and can fail to provide effective signals for resource allocation (UNIDO 2010a). In particular in the context of industrial development and structural change, it may even be required to go against markets and perceived comparative advantages in developing broader industrial capabilities, value addition and sustainable competitive advantages.

This view has gained prominence in the context of discussions around "New Structural Economics" initiated at UNIDO particularly by Justin Lin (former World Bank chief economist). This approach also emphasizes the importance of the active role of governments in industrial development and particularly in "picking sectors", i.e. through identifying the "next" sector/s to develop and facilitation thereof, e.g., by supporting incubation programmes, improving the standard of physical infrastructure and creating fiscal incentives for first movers, etc. (UNIDO 2012).

Proponents of these two approaches either favour the market or the state respectively. More fruitful than dwelling on this dichotomy may however be a perspective that focuses on the relational interdependency between the private and the public sector in furthering IU (Rodrik 2004; Morris 2010). Whether countries follow a more liberal or interventionist approach, the alignment of different policies and levels of interventions, including micro firm-level, meso institutional and macro policy, and of private and public sector efforts is crucial for IU efforts.

Support institutions and BDS providers: A crucial role in IU processes is played by private and public support institutions, including business associations, technical centres, investment promotion centres, business development services (BDS) providers, quality and SMTQ institutions, training institutes and Universities, and trade unions (institutional linkages). In particular, functioning BDS provider markets and quality and SMTQ infrastructures are of vital importance but often embryonic or virtually inexistent in LDCs. This institutional dimension is highly relevant at the meso level to enable, further and sustain firm-level (micro) IU processes. The initiatives of actors at the micro and meso level depend on the (macro) policy framework and business environment, involving the regulatory environment, physical and bureaucratic infrastructure, macroeconomic

policy, trade, investment and competition policy, and all types of industrial policies (policy framework and business environment). These national macro level policies are importantly shaped by the global policy context and international institutions, including the global trade and investment regimes set by the World Trade Organization (WTO), the International Monetary Fund (IMF), and other international organizations. In the context of regional integration, macro-regional policy frameworks and regional institutions are also increasingly shaping the policy context of countries, including regional trade agreements.

Low road versus high road to competitiveness: IU involves two central objectives: reducing costs and increasing value added which together should lead to a better positioning in value chains and markets. Cost-competitiveness is necessary but often not sufficient to remain competitive on a sustainable basis. Competition in the low cost segment is very tough and not sustainable as it can be easily trumped by countries with even lower costs. Further, this route provides limited opportunities for capturing profits and higher wages. Hence, this so-called "low road to competitiveness" is favoured by the "high road to competitiveness" that includes IU strategies focusing on high quality, reliability, short lead times, flexibility and just in time production, and broader functions such as input sourcing, product development, design and logistics as opposed to strategies solely based on cost containment (Kaplinsky/Morris 2001).

Social and environmental upgrading: The upgrading debate has largely focused on IU in terms of increasing productivity and economic performance of firms and industries. Recently, the concept has evolved into a larger understanding that also includes social and environmental dimensions. This is based on concerns that global competition might lead to a "race to the bottom" whereby firms in less developed countries compete by adopting lower levels of compliance to social and environmental standards related to the "low road to competitiveness".

In this respect, environmental upgrading can be defined as making production and value chains more sustainable by reducing their footprint with regard to carbon, water and other inputs as well as waste, pollution and other outputs. With regard to process upgrading and cost reductions there may be considerable scope to combine industrial with environmental upgrading achieving both increased competitiveness by reducing costs and more environmentally sustainable production methods.

Social upgrading focuses on the social consequences of production and IU and brings workers, gender and poverty dimensions into the IU discussion. Workers

are on the one side a productive factor and play a crucial role in increasing productivity and skills but workers are on the other side also social agents that have rights. Taking this into account, social upgrading can be defined along three dimensions - the quantity of employment, the type of employment (unskilled versus higher skilled jobs) and the quality of employment[4]. The limited research available shows that IU can result in social upgrading but that this does not happen automatically (Barrientos et al. 2010; Plank/Staritz 2011; Plank et al. 2012; Bernhardt/Milberg 2011). The crucial question is under what circumstances both firms and workers can gain from a process of upgrading by improving their respective position and which incentive and support systems need to be in place to ensure that firms not only "climb up the value chain" (and hence upgrade their economic performances) but, at the same time, also improve their performance with regard to employment creation, skill development and labour standards.

Table 2 gives an overview of the different dimensions of IU and their potential links to social and environmental upgrading.

Table 2: Relations between industrial, social and environmental upgrading

Industrial upgrading	**Social upgrading**	**Environmental upgrading**
Process	Employment creation -	Reduction of footprint +
	Skill content +	
	Quality of work +/-	
Product	Skill content +	
Functional	Employment creation +/-	Reduction of footprint +/-
	Skill content +	
Channel	Skill content +/-	Reduction of footprint +/-
	Quality of work +/-	
Cluster	Employment creation +	

Source: Author's illustration.

[4] To assess the quality of employment the ILO decent work framework with its focus on wages, working conditions and enabling rights (ILO 1999) is a useful reference.

3.3 Conclusions for UNIDO's IU initiatives

Based on this short overview of the IU literature, the following conclusions can be made with regard to UNIDO IU initiatives that stress the need for a systemic approach to IU:

- ***Dynamic nature of IU:*** As the term upgrading implies it is not a static but a dynamic, complex and multi-dimensional improvement processes that takes place in a changing context. In a dynamic and uncertain world characterized by high competition and rapid innovation, IU does not involve reaching fixed goals as competitive dynamics are changing and "core competences can easily become core rigidities" (Kaplinsky et al. 2009: 1).
- ***Systemic competitiveness:*** IU is not only determined by the actions and the performance of individual firms but also by their interactions with other firms, suppliers, service providers, buyers and institutional actors. IU is a complex issue that is influenced by a large number of factors which requires a systemic perspective that takes into account the entire set of underlying factors. Upgrading firms in isolation will not lead to the intended results, as firms interact along value chains and within clusters and are embedded in a meso and macro environment.
- ***Role of lead firms:*** Lead firms play critical roles in enhancing systemic competitiveness along the value chain as they structure and govern value addition and activities along chains. Lead firms can enable but also constrain IU prospects of supplier firms. Hence, it is crucial to understand the strategies and requirements of lead firm and the power asymmetries between firms that determine how entry barriers are created and how gains and risks are distributed.
- ***Importance of institutional and regularity context:*** Firms and industries have a crucial role in IU processes. However, public institutions and the business and policy environment crucially enables or constrains IU at the firm level. There is only so much IU that is likely to emanate from private sector dynamics as there. Hence, firm and industry level IU needs to go hand in hand with improvements in the business environment, public and private (support) institutions and broader industrial policies.
- ***Social and environmental dimensions of IU:*** IU does not automatically support upgrading in other dimensions that are important for development

objectives, particularly social and environmental dimensions. Hence, the relationships between industrial, social and environmental upgrading and under which conditions they go together have to be explicitly taken into account.

4. Generic Intervention Logic and Assessment Framework

This chapter looks at different types of UNIDO interventions that are relevant to IU and analyses to what extent these interventions respond to the conceptual approaches and dimensions of IU identified in chapter 3. Based on this analysis a generic IU intervention logic and a set of key evaluation questions is developed that covers the different UNIDO IU programmes and their different levels of interventions. In line with the TORs, the aspect of efficiency is only marginally touched as this is not the core of a TE.

4.1 UNIDO initiatives with IU relevance

UNIDO's mission statement says that "UNIDO aspires to reduce poverty through sustainable industrial development". UNIDO's priorities with regard to PSD are poverty alleviation through productive activities and trade capacity building. In this context IU initiatives are an integral part of UNIDO's mandate. Their main objectives are to "enhance the contribution of private sector manufacturing enterprises to the sustainable economic growth and poverty reduction of the whole country through industrial upgrading and improvement of enterprise competitiveness" (UNIDO 2010). There is a variety of interventions at UNIDO that encompass firm-level upgrading aimed at enhanced competitiveness. However, not all of these initiatives refer explicitly to IU.

The interventions with IU relevance are conducted by different branches and units. Most IU activities take place in the Business, Investment and Technology Services Branch (PTC/BIT) that includes units focusing on competitiveness, upgrading and partnerships (CUP), cluster and business linkages (CBL), and investment and technology promotion (ITU). The Agri-Business Development Branch (PTC/AGR) focuses on the sectors textile and garment, leather and footwear, wood, and food processing and generally uses a value chain approach that has recently been published in the "Diagnostics for Industrial Value Chain Development" (UNIDO 2011a). The Trade Capacity Building branch (PTC/TCB) focuses on quality and SMTQ infrastructure. Table 3 shows an overview of these interventions and their key features.

"***Classical" IU programmes:*** These interventions have been conducted since the late 1990s, most of them in the context of Integrated Programmes (IP) or Country Service Frameworks (CSF) at the national or macro-regional level. They are broad and in-depth IU programmes with components approaching the macro, meso and micro level and normally include improved access to finance for firms through an "upgrading fund". Until mid 2010, these IU initiatives were managed by TCB and largely based on the "Methodological Guide: Restructuring, Upgrading and Industrial Competitiveness" (2003). Since then, they were moved to CUP in the newly created BIT branch. More recently, the approach has been revisited in the context of the "Initiative on Industrial Upgrading and Enterprise Competitiveness" (IUEC) (see UNIDO 2009, 2010, 2011). These broad based interventions are the core of IU activities at UNIDO and they are the only type of intervention that refers to IU in its name. For the purpose of this evaluation they have been labelled "classical" IU programmes.

Table 3: Key features of IU related interventions

	"Classical" IU	**Value chain based IU**			**Cluster based IU**	
		SPX	**Supplier development (automotive)**	**Sector-level IU (food, textiles, leather, wood)**	**Clusters**	**Export consortia**
Main characteristics	Macro, meso and micro interventions, link to decision making mechanism and funding scheme	Focus on local sourcing and subcontracting, supplier-buyer relation, lighter interventions	Focus on local suppliers and continuous improvement, generally micro and meso interventions	Value chain approach, generally macro, meso and micro interventions	Inter-firm networking and joint actions, link to support institutions, micro and meso interventions	Inter-firm networking with market access focus, focus on micro interventions
Macro – policy level	National upgrading strategy	-	Some policy advice	Sector strategy	National cluster strategy	-
Meso – institutional level	Upgrading office and fund, technical centres, SMTQ, local consultant training	SPX centres, industry associations, investment promotion agencies	Industry associations, support schemes, local consultant training	Technical centres, industry associations, local consultant training	Industry associations, capacity building	Industry associations
Micro – firm level	Pilot basis, in-depth diagnostics, upgrading plan, training and assistance,	Profiling, matchmaking, benchmarking, links to service providers	Benchmarking, business plan, counselling, training	Diagnostics, benchmarking, business plan, training and assistance, varying support	Pilot basis, cluster mapping, network building, cluster business	Network building, business plan, management structure

	subsidy for soft and to lesser extent hard interventions			schemes for interventions	plan, governance structure, training	
BDS delivery mecha-nism	Training of local consultants/ institutions, coupling of international and national consultants	Profiling/ benchmarking expert from SPX centre, linking firms to BDS providers	Training of local consultants/ institutions, coupling of international and national consultants	Training of local consultants/ institutions, coupling of international and national consultants	Training of local consultants, cluster development agents (CDA) and institutions	Cluster or EC expert
Firm selection/ cost sharing	Varying criteria and cost sharing mechanisms	Firms are generally approached, no fees	Varying criteria and cost sharing mechanisms	Varying criteria and cost sharing mechanisms	Self-selection, no fees	Self-selection, no fees
Sector focus	Industry-wide, pilots with sector focus (food, textile, leather)	Focus on metal, plastic, paper/packaging, rubber, textiles, industrial services	Automotive component sectors	Food, textiles, leather, wood	No	Often agriculture-related sectors
Target firms	medium	medium	medium	medium	SMEs	SMEs
Type of IU targeted	policy, institutional, process, product	channel	institutional, process	policy, institutional, process, product, functional	institutional, cluster	channel, cluster
Sample projects	IP Tunisia, IP Algeria, CSF Egypt, IP Senegal, IP Syria, UEMOA	SPX South Africa	Automotive Supplier India, Automotive Supplier South Africa	Leather Ethiopia	Clusters Vietnam, Clusters India	-

Source: Author's illustration.

Value chain based IU programmes: These interventions cover a variety of projects that do not always refer directly to IU. They can be stand-alone interventions or be part of broader programmes, complementing classical IU projects in incorporating an explicit sector and value chain perspective and in focusing on market access and buyer linkages. Sectoral projects, particularly on the textile and garment, leather and footwear, wood and agro-food sectors in AGR, supplier development programmes in the automotive component sector in CBL, and subcontracting and partnership exchange (SPX) programmes in ITU are most relevant in this regard. SPX covers a much lighter approach than classical IU programmes but even though it started largely focusing on profiling and matchmaking activities, recently and particularly in the context of projects in South Africa and lesser developed countries in SSA, the SPX approach has been

expanded to broader services such as benchmarking, certain training activities and linking to service providers that more broadly support IU interventions. The automotive component and other sector-specific programmes focus generally directly on IU.

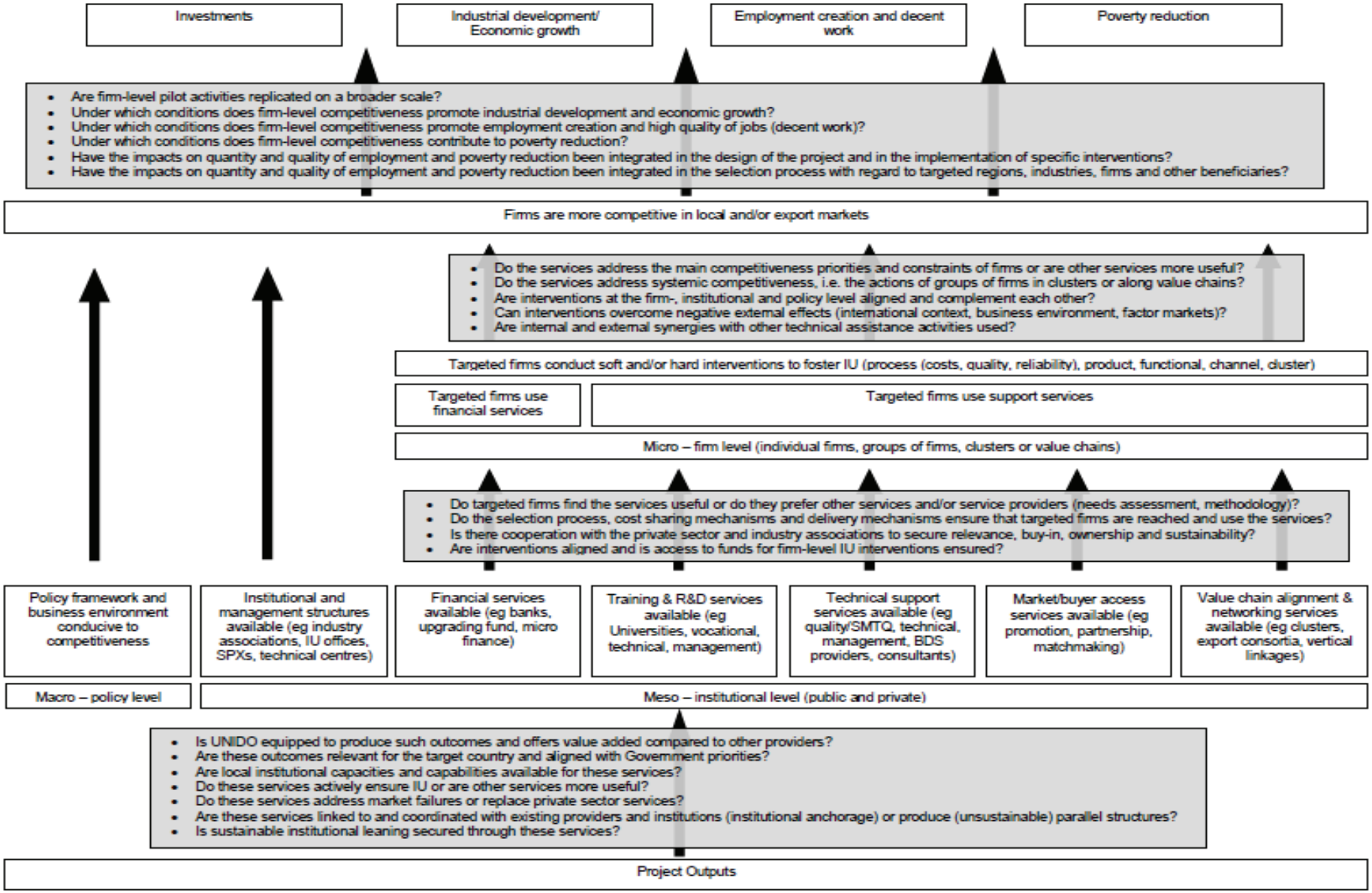
Cluster based IU programmes: The most relevant projects in this regard are cluster and network development (CND) initiatives, including largely clusters and export consortia. These projects focus on cooperation and linkages between local firms and between firms and support institutions which is seen as important for increasing efficiency and competitiveness at the firm level. The focus is geographically on the local level and on local economic development. Although CND projects do generally not directly refer to IU, they share similar objectives and methodologies with classical IU programmes. As is the case with SPX programmes, more recently particularly export consortia projects have been extended to include more directly IU activities given the demand in lesser developed countries particularly in SSA where linking firms and networking was not sufficient to be able to access export markets.

4.2 IU concept and intervention logic

Based on the discussion of IU approaches and dimensions in chapter 3 and the identification of UNIDO interventions with IU relevance and their key features, the evaluator developed the generic intervention logic for IU shown in Figure 2.

This intervention logic focuses on outcomes at the macro, meso and micro level and impacts as well as the underlying assumptions in the results chain. Classical IU programmes have the broadest approach covering macro policy, meso institutional and micro firm-level interventions including the establishment of a governance and management structure and a financing mechanism for firm-level IU support. These programmes cover therefore outcomes 1, 2, 3, 5 and 8 in Figure 2. Value chain based IU programmes focus on outcomes 2, 5, 8 and to a varying extent on 6 and 7. As value chain IU programmes are more diverse, different projects focus however on different components. Custer based IU programmes focus on outcomes 2, 5, 7, 8 and export consortia also on outcome 6. The depth of these interventions varies however importantly as stated above and discussed in more details below.

Figure 2 (next page): Intervention logic of UNIDO IU projects


Investments
Industrial development/ Economic growth
Employment creation and decent work
Poverty reduction
Are firm-level pilot activities replicated on a broader scale?
Under which conditions does firm-level competitiveness promote industrial development and economic growth?
Under which conditions does firm-level competitiveness promote employment creation and high quality of jobs (decent work)?
Under which conditions does firm-level competitiveness contribute to poverty reduction?
Have the impacts on quantity and quality of employment and poverty reduction been integrated in the design of the project and in the implementation of specific interventions?
Have the impacts on quantity and quality of employment and poverty reduction been integrated in the selection process with regard to targeted regions, industries, firms and other beneficiaries?
Firms are more competitive in local and/or export markets
Do the services address the main competitiveness priorities and constraints of firms or are other services more useful?
Do the services address systemic competitiveness, i.e. the actions of groups of firms in clusters or along value chains?
Are interventions at the firm-, institutional and policy level aligned and complement each other?
Can interventions overcome negative external effects (international context, business environment, factor markets)?
Are internal and external synergies with other technical assistance activities used?
Targeted firms conduct soft and/or hard interventions to foster IU (process (costs, quality, reliability), product, functional, channel, cluster)
Targeted firms use financial services
Targeted firms use support services
Micro – firm level (individual firms, groups of firms, clusters or value chains)
Do targeted firms find the services useful or do they prefer other services and/or service providers (needs assessment, methodology)?
Do the selection process, cost sharing mechanisms and delivery mechanisms ensure that targeted firms are reached and use the services?
Is there cooperation with the private sector and industry associations to secure relevance, buy-in, ownership and sustainability?
Are interventions aligned and is access to funds for firm-level IU interventions ensured?
Policy framework and business environment conducive to competitiveness
Institutional and management structures available (eg industry associations, IU offices, SPXs, technical centres)
Financial services available (eg banks, upgrading fund, micro finance)
Training & R&D services available (eg Universities, vocational, technical, management)
Technical support services available (eg quality/SMTQ, technical, management, BDS providers, consultants)
Market/buyer access services available (eg promotion, partnership, matchmaking)
Value chain alignment & networking services available (eg clusters, export consortia, vertical linkages)
Macro – policy level
Meso – institutional level (public and private)
Is UNIDO equipped to produce such outcomes and offers value added compared to other providers?
Are these outcomes relevant for the target country and aligned with Government priorities?
Are local institutional capacities and capabilities available for these services?
Do these services actively ensure IU or are other services more useful?
Do these services address market failures or replace private sector services?
Are these services linked to and coordinated with existing providers and institutions (institutional anchorage) or produce (unsustainable) parallel structures?
Is sustainable institutional leaning secured through these services?
Project Outputs

4.3 Evaluation questions

The key evaluation questions elaborate on the tentative list of evaluation questions in the TORs. They cover three broad areas which will be assessed for the sample of 12 IU projects with the objective to identify common conclusions and recommendations for UNIDO's IU programme as a whole. The focus of the TE is on the design and intervention logic of IU interventions as well as on relevance, effectiveness and impact, sustainability and synergies.

- Under design, the evaluation assesses the intervention logic of IU programmes, the different levels of interventions and whether there is a homogenous and consistent approach to IU, specific issues with regard to firm-level interventions and to what extent a systemic approach to IU is included at the design stage.
- Under relevance, the evaluation assesses whether the IU initiatives are responsive and relevant to the target country's context, aligned with the Government's development priorities, and in accordance with the needs and priorities of the target groups and beneficiaries and whether local actors are involved and "own" the projects.
- Under effectiveness and impact, the evaluation assesses the achievements of IU initiatives against their key objectives and its impact on competitiveness and development objectives, including industry development/economic growth, employment creation and poverty reduction.
- Under sustainability, the evaluation examines whether the activities and benefits from the IU initiative would (or would be likely to) continue after the completion of the UNIDO project and thus have a longer term impact on industrial structures and development objectives in target countries.
- Under synergies, the evaluation assesses to what extent UNIDO IU interventions are coordinated internally and externally with other activities in the target countries and existing local institutions and providers.
- The aspect of efficiency, which relates to whether the projects is implemented in a cost-effective manner, is only marginally touched as this is not the core of a TE. Questions of efficiency are however addressed in cases where they are relevant for UNIDO's whole IU programme.

The following questions are covered in the three broad areas:

Design, intervention logic and systemic approach:

- Intervention logic:
    - Is there a homogenous and consistent IU definition and approach for the design of IU interventions (i.e. dimensions of IU, intervention logic/logical framework, level of interventions)?
    - What are key characteristics of the design of IU interventions and what can be learnt from different approaches?
    - What are the main target groups and beneficiaries of IU interventions (e.g. public institutions, financial institutions, national consultants, public/private BDS providers, individual firms, groups of firms/clusters/value chains)?
    - What are the main types of interventions (e.g. policy formulation, institutional capacity building, capacity building of BDS provider landscape, training activities, provision of BDS, soft and/or hard interventions at the firm-level)?

- Firm-level interventions:
    - Do IU interventions address the needs and priorities of target firms (needs assessment, methodology)?
    - Which BDS delivery mechanisms are used (e.g. use of existing private and/or public consultants and BDS providers, technical centres, direct technical assistance (TA), capacity building of national consultants)?
    - Do the selection process, cost sharing mechanism and delivery mechanisms ensure that target firms are reached?
    - Is access to funds for implementation secured through IU interventions?
    - How does the design ensure that pilots are replicated on a broader scale?
    - How do IU interventions deal with the potential negative trade-offs of firm-level interventions (i.e. market distortions, replacement of existing BDS providers)?

- Systemic approach:
    - To what extent do IU interventions apply a systemic approach to identify and address the critical challenges and opportunities of firms and their environment?
    - To what extent do IU interventions focus on certain sectors and their specific challenges?
    - To what extent do interventions address systemic competitiveness, i.e. the actions of groups of firms in clusters or along value chains, market and buyer access, value chain alignment, linkages between firms?
    - To what extent do interventions address the broader business, policy and institutional environment of firms?
    - Does the project design encompass the macro-, meso- and micro-dimensions of IU and are interventions at the firm (micro), institutional (meso) and policy (macro) level aligned and complement each other?

Relevance, ownership and synergies:

- Relevance and ownership:
    - Is the design of IU interventions relevant for the target Governments and aligned with Government strategies and priorities and the context of the target countries?
    - Is the design of IU interventions relevant for industry-wide institutions such as industry associations, technical centres or training institutes?
    - To what extent are local public and private stakeholders involved and how effective was this cooperation?
    - Are local institutional structures and capabilities (public and private) available for these services and do they have sufficient absorptive capacity?
    - Is the project implementing unit locally anchored?
- Synergies:
    - To what extent are IU interventions integrated with other UNIDO interventions (internal coordination)?

- To what extent are IU interventions coordinated with activities by other organisations and donors in the target countries and existing local institutions and providers (external coordination)?
- To what extent do UNIDO IU interventions provide value added in terms of providing support and services that are not available through other (private) actors?

Effectiveness, sustainability and impact:

- Effectiveness and sustainability:
  - What are the results and outcomes of IU interventions at the micro, meso and macro level (compared to targeted results and outcomes)?
  - Are these results and outcomes likely to last?
  - How are outcomes monitored?
  - Can interventions overcome negative external effects (high competition, international context, business environment, factor markets)?
- Impact and development objectives:
  - To what extent do IU interventions contribute to firm- and industry-level competitiveness (i.e. increasing sales or/and unit prices, new end markets, higher quality)?
  - To what extent do IU interventions contribute to broader development objectives (investment, industrial development/economic growth, employment creation and decent work, poverty reduction)?
  - Did the projects have indirect effects, in particular on firms that were not directly supported or private BDS providers?
  - How are development objectives addressed and integrated in the project design and implementation (i.e. target regions, industries, firms, activities)?
  - How is gender mainstreaming addressed and integrated in the project design and implementation (i.e. sex-disaggregated data, target regions, industries, firms, activities)?
  - How are impacts monitored?

5. Assessment of the different Types of Interventions

This section offers an analysis of the different types of interventions conducted on the basis of the assessment framework and the evaluation questions developed under section 3 and 4. The analysis in this section is complemented by section 6 that uses the DAC evaluation criteria and identifies common issues across the different types of initiatives.

5.1 Classical IU projects

As explained in section 4.1, this TE has adopted the term "classical" IU projects for the broad and in-depth IU programmes approaching the macro, meso and micro level and normally including improved access to finance for firms through an "upgrading fund". "Classical" IU projects aim to "prepare and adapt industries and their environments to the new context of globalisation which is marked by tough competition" (UNIDO 2003: vii). They should "(...) precede or, failing that, run parallel to the establishment of the free-trade area or preferential arrangement." (UNIDO 2003: 6) "Classical" IU projects have been conducted since the late 1990s, most of them in the context of IPs or CSFs at the national or macro-regional level.

UNIDO has designed and implemented classical IU programmes since 1996, particularly in the context of regional integration processes in the Mediterranean and SSA region. In the Euro-Mediterranean context, the concept of IU emerged during the late 1980s in connection with the accession of Portugal and Spain to the EU. As part of the accession process, the EU financed substantial support programmes to allow these countries to adjust and prepare for the Common European Market.

During the late 1990s, when the negotiations between the EU and the Southern Mediterranean countries about the Euro-Mediterranean Free Trade Zone started, similar instruments became part of the negotiation process. UNIDO contributed to re-tailoring the policy instrument of IU for the context of the Mediterranean countries. The first country that approached UNIDO for IU support was Tunisia in 1995 as part of its National Upgrading Programme which is widely recognized as a benchmark and one of the main reasons for Tunisia's sustained industrial

modernization process over the last decade. After Tunisia, requests followed from Algeria, Morocco, Egypt and Syria. In 2009 a "classical" IU programme was prepared for Palestine in the context of the National Industrial Modernization and Export Development Programme (NIMED) but never implemented due to political changes.

The next wave of interest in IU programmes has developed in connection with the negotiation of Free Trade Agreements between the EU and SSA countries. Senegal was the first African country that launched a National Upgrading Programme in 2006. At about the same time, the West African Union (UEMOA) launched an upgrading programme at a regional scale. Both programmes are currently implemented with financial support from France (AFD) and TA from UNIDO. UNIDO also provides TA to Cameroon for its National Upgrading Programme which is financially supported by the EU. During the course of the present TE this programme has been under evaluation by the EU and has also been subject to a UNIDO evaluation.

Table 4 shows the six sample classical IU projects that built the evidence base for the assessment together with programme level documents.

Table 4: Overview of "classical" IU programmes

	Tunisia	**Algeria**	**Egypt**	**Syria**	**Senegal**	**UEMOA**
Duration	2001-06	1998-2003	2000/03-06	2004/07- 10	2001-05 (pilot), 2006-10 (operational phase); 2011- (phase II)	2007-12 pilot programme; phase II in preparation
Budget	US$ 2.7mn	US$ 5.2mn	US$ 1.3mn	Euro 2mn	Euro 11.9mn (phase 1) / US$ 2.5mn	Euro 10.3mn (10.9 UEMOA and 0.8 UNIDO)
Counterparts	Ministry of Industry, 3 technical centres	Ministry of Industry	IMC, Ministry of Trade and Industry, Investor Association	Ministry of Industry	SME Ministry (ADEPME)	Commission of UEMOA and national governments
Donor	Italy	Italy, France, UNDP, min. funds from UNIDO	Egypt, smaller initial part UK	Italy	France (AFD); phase II France & EU	UEMOA and UNIDO
Part of national programme	National Upgrading Programme (PMN)	National Upgrading Programme	Industrial Modernization Project (IMP)	-	National Upgrading Programme (PARCES)	UEMOA Industrial Common Policy (PIC)
Institutions supported	SC and UO; ISO & HACCP; 3	SC and UO; ISO & HACCP; 1	SC and UO (IMC and UMU); 1	SC and UO (UMU); 1 technical	SC and UO	Regional and national SC and UO; 3

	technical centres	technical centre	technical centre	centre		technical centres
Funding scheme	UF	Delays in UF	Credit line not widely known	Delays in credit line: included a financial sector analysis	Credit line, link with banks	Credit line
Consultants trained	200	220	89	36	Around 150	584 (460 certified)
Firms upgraded	70; focus on certification	17 (70% HACCP)	87 (63% ISO, 14% HACCP)	Around 50	Diagnosed 215, 36 upgrading plan validated / 99	99
Cost sharing	US$1,000 per firm	-	30% if one firm, 15% if two or more firms for TA	Small contribution to industry chamber	80% diagnostic; 20% hard; 70% soft, limit EUR 26,000	Contribution to upgrading office, diagnostic and soft for free, hard 80% refunded
Sector focus	Leather, textile, agro-food	Agro-food	Textile, agro-food	Textile	No sector focus	Agro-industries (pilot phase)
Comments	National IU programme success; targeted number of firms not reached	Small disconnected component on supplier SPX and export consortia	Regional focus Borg el Arab, change to simpler diagnostics methodology, no export consortia est., 50% of funds unspent	Investment promotion, textile strategy and technical centres not successful, ISO 9000 cancelled	Approval of upgrading plans delayed, fast track diagnostic	Heavy and unclear management structure (regional and national), long delays

Source: Author's illustration.

Main characteristics

In 2003 UNIDO published a "Methodological Guide: Restructuring, Upgrading and Industrial Competitiveness" that became the reference tool for UNIDO's IU programmes, particularly in the Euro-Mediterranean region and in SSA. The Guide states that the "aim of the integrated restructuring and upgrading programme is to support the process of restructuring, competitiveness, integration and growth of industries and employment and to facilitate access to the international market in the context of economic and trade liberalization." (UNIDO 2003: 7) In the Guide IU is defined in the following way: "Upgrading is a new concept developed by UNIDO during the last few years. It involves putting into effect the concepts and results of the major changes in the global environment. It

is a continuous improvement process designed to prepare and adapt developing countries' enterprises and their environment to the requirements of free trade." (UNIDO 2003: 7; adapted based on UNIDO 2010: 3)

Two sets of challenges are identified that IU project are supposed to overcome. One set is connected to the immediate industrial environment which contains a number of obstacles for IU and improving the competitiveness of firms and the other with the management systems and methods within firms. IU of industry is therefore defined as entailing "both a reform of the business environment and ongoing improvements in management systems to improve quality, productivity and competitiveness and boost employment end exports." (UNIDO 2003: vii)

Hence, the following "two-step approach" is defined for IU programmes:

- The first step is designed to promote the modernization of the immediate environment by developing national restructuring and upgrading programmes and to establish a legal framework and management structure (in the form of IU offices), strengthening of the capacities of support and consultancy structures, improvement of quality infrastructure (quality assurance, certification, accreditation, metrology), and creation of IU funds.
- The second step is designed to promote the development of competitive industries by helping firms, on a pilot basis, to position themselves most advantageously in an open economy and to formulate a strategy adapted to the new competitive situation.

The first "step" of this sequential approach is described as follows: "Most developing countries have support institutions that are not developed or not sufficiently developed to be able to assist industrial enterprises in their adaptation and upgrading efforts. It is necessary to review these institutions, redefine their roles and activities and strengthen their capacities with a view to providing efficient TA and support to meet the needs of enterprises in the new context of international competition. The programme is therefore designed to strengthen industrial support institutions such as national standardization, metrology, certification and accreditation agencies, and to promote the international recognition (through mutual recognition agreements) of product, system, measurement and test certification. It is also designed to establish or strengthen the capacities of technology centres at a sectoral (agro-food, textile, etc.) and/or horizontal (packaging, engineering, etc.) level so as to provide industrial

enterprises with the required technical assistance." (UNIDO 2003: 7f) The Guide does not provide any further description of the first step.

The second step of promoting "the development of competitive industries by helping enterprises" is developed in much greater detail. Here, the Guide recommends a sector and pilot approach for the strategic upgrading process (SUP) which involves four steps: (i) overall strategic diagnosis; (ii) selection of upgrading strategies; (iii) formulation of an upgrading plan; and (iv) implementation and monitoring of the upgrading plan. The cornerstone of the SUP is the "diagnostic studies" at the firm level that aim at identifying the weaknesses and potentials of the firm to rectify the former and exploit the later. The Guide distinguishes three types of such studies: Overall (in-depth) strategic diagnoses, express diagnoses and functional diagnoses. Only the procedure for overall strategic diagnoses is further developed in the Guide which includes a systematic analysis of the environment in which the firm operates, its market and competitive position, and an in-depth and overall analysis of the different internal functions including an evaluation of the capabilities and performance of the firms. Hence, the procedure includes five dimensions: (i) analysis of external sources of competitiveness; (ii) financial diagnosis; (iii) diagnosis of managerial skills and social aspects; (iv) analysis of product markets and strategic positioning; and (iv) diagnosis of technical capacities and quality. The diagnostic firm studies are a specific type of BDS and the Guide reads to a large extent like a text book for consultants or other providers of such BDS.

Based on the above overview, the classical IU approach has three key characteristics:

- Broad definition of IU involving reforms to enhance the business environment and reinforce institutional capacities of the technical and business support infrastructure and improvements at the firm-level with regard to management systems, production processes, quality and certification, technology, marketing, equipment, etc.
- Macro, meso and micro level approach with a focus on developing an industry-wide upgrading strategy, capacity building of national BDS consultants and technical centres or other industry-specific institutions, and firm level upgrading support
- Support services and finance in the form of subsidies to individual firms on a voluntary and pilot basis by providing BDS (diagnostics, upgrading plans) and

implementation assistance in the context of national schemes including a steering committee (SC) with representatives from the public, private and financial sector, IU office, and IU funds with the following general elements:

- Provision and generally full-financing of BDS (diagnostics and upgrading pans) by a consultant team including one international consultant and up to four national consultants with expertise in financial; commercial, marketing and positioning; human resource; and production processes and technology;
- Assistance for implementation of firm-level upgrading plans with different subsidy schemes for hard and soft interventions (around 80% for soft interventions, around 10-25% for hard interventions) and varying involvement of UNIDO;
- Firm-level interventions have a pilot character generally focusing on one or few priority sectors that are planned as a demonstration tool for an industry-wide upgrading programme which is generally divided in the pilot phase (phase 1) and the roll-out phase (phase 2);
- Firm-level pilot interventions generally include the following steps: (i) participation request by firms on a voluntary basis and pre-diagnostics (first screening and visits to verify information), (ii) selection of international and national consultants and recruitment, (iii) firm visits and firm-level work of consultants (diagnostics and upgrading plan), (iv) firm approval of diagnostics and upgrading plan, (v) IU office approval of diagnostics and upgrading plan, (vi) SC approval of diagnostics and upgrading plan, (vii) implementation of TA recommended in the upgrading plan by firms through soft and to a lesser extent hard interventions, and (viii) firms receive subsidy from IU fund.

Assessment

Holistic approach: The broad definition of IU and the holistic three-level approach including interconnected interventions at the micro and meso and to a lesser extent macro level are the main conceptual strengths of classical IU programmes. But due to limited funding and/or Government priorities this systemic approach has not always been implemented. UNIDO IU projects generally focus on micro level interventions and capacity development of BDS consultants with varying focus on institutional capacity building and policy formulation. In practice some classical IU interventions ended up largely focusing

on setting up "Upgrading Offices" that administer the delivery of subsidized consultancy services and of investment subsidies to selected firms.

The first generation of classical IU programmes has also not sufficiently focused on linkages and synergies between firms, the role of clusters and value chains, and the importance of getting access to markets and buyers to ensure that IU leads to business expansion. These aspects have however been integrated to a certain extent in newer programme-level documents that include value chain analysis and cluster approaches (see UNIDO 2010, 2011). The IU project in Cameroon included an SPX activity and the one in Côte d'Ivoire an "export consortia" activity.

Importance of BDS: Capacity building at the institutional and individual consultant level is crucial to ensure sustainability of classical IU programmes. The combination of firm-level TA on a pilot basis with these capacity building activities for industry-wide replication ("roll-out") are a useful approach that is also used in other UNIDO IU programmes such as in cluster or automotive supplier development programmes (see sections 5.2 and 5.3). Building consultancy capacities in the first place and using these capacities for implementation of firm-level BDS and TA activities is a lengthy process but a crucial feature of the UNIDO approach that differentiates UNIDO from other institutions that work more with in-house expertise or international consultants.

Also the coupling of international and national consultants is a useful model. Most projects have been successful in training a number of local consultants on basic IU concepts (for numbers see table 4). These consultants were used together with international consultants for the firm-level diagnostic process. However, the quality between international and local consultants diverged considerable in several projects.

A main problem is that often no information was collected or study conducted on the existing national or regional BDS markets. Also after the projects, there is often no information available that would allow an assessment to what extent the functioning of IU-related BDS markets (in terms of better quality, better supply, etc.) has improved on a sustainable basis which should be the ultimate objective of these interventions (see for example the UEMOA programme).

Pilot logic: Firm-level interventions follow a pilot logic, i.e. focusing on priority sectors and firms selected through voluntary calls for tenders. However, this pilot

logic is not always made explicit in the interventions' design and in the overall programme logic.

The results at the pilot project level have generally been positive. The evidence on the degree of effectiveness with regard to institutional outcomes (capacity-building, policy) is less systematic and pilots have often not generated broader replication which is necessary for systemic impact beyond the pilot firms.

The UEMOA programme was positioned as a "pilot programme", working under the assumption that the regional approach required intensive testing before "scaling up". However, the programme did not experiment with innovative features nor did it include an appropriate mechanism for results monitoring that would have allowed for continuous learning and extraction of lessons for the "scaling-up" phase.

There is further a lack of clear rationale for firm-level interventions. Generally these interventions are based on random selection through calls. But more recently discussions have intensified at UNIDO to what extent IU could be aligned with new structuralist economics. However, a solely voluntary approach may not be adequate for targeting lead firms with the largest impact potential, which would be a requirement for such an approach.

Access to finance: The link to a financing scheme which provides funds for implementation of firm-level TA activities is a key characteristic of classical IU programmes. Most other UNIDO IU interventions take it for granted that firms will find access to finance to implement the upgrading plans and provide no explicit links to financing schemes. Implementing upgrading funds and making them work in an effective, efficient and sustainable manner proved, however, to be challenging. Long delays in setting up the upgrading funds have been experienced for example in Algeria, Egypt, Syria and Senegal. Also in the UEMOA project, the reimbursement of subsidies has generated frustrations due to late receipt.

There are more general challenges related to such subsidy schemes leading to market distortions, crowding out and unproductive investments that have not been consistently addressed in the design of projects. Linking with the financial sector would address these challenges. The Senegalese IU programme has been successful in providing such linkages.

Regional programmes and adaption to variable country contexts: The classical IU programme was developed in the context of Europe and later North African

countries that have had relatively strong governments, developed private sector associations and support institutions such as technical centres. With the IU programme in Senegal the programme was first transferred to a LDC with a quite different policy and institutional context, including often weak governments and institutional capacities, scarce or non-existent private sector institutions in particular at the sectoral level, lack of skills and expertise, and under-developed industrial structures including a large share of small and micro firms, often in the stage of informality.

With the advent of the regional IU programmes for Sub-Saharan Africa, country specific adaptations to the economic and industrial heterogeneous contexts of LDCs became important but did not always happen in a pro-active way. In the UEMOA programme, country studies to identify "priority sectors" were conducted. However, the methodology was inadequate and the results were not used to proactively target the identified sectors. Instead, the programme went for an "equal rights for all" approach, in line with UEMOA requirements. Emphasis was given to the definition of standardized procedures for uniform application across all countries.

The evaluation of the UEMOA programme found that there is a genuine regional dimension of IU programmes but that there is a risk of frictions between regional and national programmes. Respecting the "subsidiarity principle" is therefore key in regional IU programmes.

Outlook

Since 2009 UNIDO management has initiated efforts to adapt and extent UNIDO's classical IU programme particularly in the context of large regional programmes that can be seen as a reaction to the challenges faced in the UEMOA programme. Of particular importance is the UNIDO "Initiative on Industrial Upgrading and Enterprise Competitiveness" (IUEC) that was launched on the occasion of the 13th General Conference of UNIDO in December 2010. This initiative attempts to overcome a limited understanding of IU and to internally revisit UNIDO's IU approach based on the experiences and lessons learned from IU programmes in different countries and regions. The IUEC advocates a "comprehensive and holistic approach at policy, institutional and enterprise levels" that should be "composed of diverse and unique development tools and services" as well as the "development of a comprehensive and integrated approach based on a composite package of UNIDO tools and programmes covering the full range of technical services that form the IU Initiative" (UNIDO 2010, 2011). The

initiative proposes a new "programme implementation and management framework" that addresses operational issues of IU programmes with a focus on improving the internal procedural, technical, financial and methodological practices.

These recommendations are comprehensive and promising, in particular the recommendation to develop a comprehensive and integrated approach to IU activities that integrates the variety of UNIDO IU approaches and services. However, the focus of this initiative is on implementation, management structures, and coordination between different UNIDO units and services and not so much on design, impact and methodological questions where certain improvements and learning between the different UNIDO IU programmes could take place.

It remains to be seen to what extent the IUEC principles will be implemented into the design of the possible regional programmes for SSA and the Caribbean that are currently being considered for potential EU funding. Should the EPAs be signed, UNIDO could become the implementing agency for several large regional IU programmes: UEMOA Phase II (€30 m); ECOWAS (€120 m); SADC (€142 m); COMESA (€112 m) and CARIFORUM (€22 m). In the project document for the UEMOA phase II, it seems that the IUEC recommendations have not been implemented consistently as it includes very similar approaches as previous project documents.

However, PACIE (Programme d'appui au commerce et à l'intégration économique), the latest regional UNIDO programme agreed with the Economic and Monetary Commission of Central Africa (CEMAC) that is expected to receive EU funding of €16 m includes quite innovative design and implementation modalities:

- It was agreed to structure the programme into three components covering SMTQ, IU and Industrial Policy but under one unified UNIDO management. The quality component should focus on enterprise needs; the industrial policy component on assisting CEMAC to adopt a regional policy.
- Regarding the IU component the donor and CEMAC insisted that it should be differentiated and adapted to the industrial potential of the different countries. Targeted industrial sectors for this component should be selected on the basis of studies to be commissioned by CEMAC and synergies with other ongoing programmes at the regional and national levels should be endured.

- A decentralized management model should be adopted, with a programme management unit to be based in Yaoundé (managed by the UR) and backstopping/quality control of technical interventions to be assumed by HQ.
- The SMTQ component has been launched at the end of 2012, whereas the detailed formulation of the IU component will have to await the outcome of the country studies to be undertaken by CEMAC. The contribution agreement for the latter component is expected to be concluded in 2013.

A new initiative is the "Integrated Industrial Upgrading and Enterprise Development Approach" (UNIDO 2012) that aims to integrate UNIDO's classical IU approach with concepts and approaches of "New Structural Economics" (NSE) initiated at UNIDO particularly by Justin Lin (former World Bank chief economist). This approach emphasizes the active role the government should play through picking sectors in the industrial development process through identifying "which activities the country should move to next". Objectives of this initiative are (1) development and promotion of an integrated IU and Enterprise Development Approach in harmonization with NSE methodology in cooperation with the Justin Lin Institute; (2) implementation and promotion of the new approach in some pilot countries in SSA ("African Lions"); and (3) development of analytical and operational tools for the implementation of the approach. This includes the development of a full-fledged integrated IU and Enterprise Development Methodology ("The Integrated Methodology") that will consolidate the current approach applied by UNIDO in furthering IU, attracting quality foreign and domestic investment and increasing the rate of technological change in developing countries (UNIDO 2012).

5.2 Value chain based IU projects

UNIDO has been involved in a number of sector-specific IU initiatives. The main focus is on the agro-food, textile, leather, wood and automotive components sectors.[5] These sector-specific interventions use different concepts and tools related to specific sector dynamics and upgrading challenges of local firms. Subcontracting and Partnership Exchange (SPX) projects are also covered in this category of IU programmes given their focus on linking firms along the value

[5] More recently, also other sectors have been targeted by UNIDO IU interventions such as the pharmaceutical sector that has been subject to an expanding UNIDO operation aiming to upgrade small and medium pharmaceutical manufacturers in a number of developing countries with the aim to locally manufacture essential generic drugs.

chain, particularly suppliers and buyers. Although SPX projects have no explicit sectoral focus they still tend to concentrate on certain sectors, particularly metal, plastic, textiles, electronics, paper and packaging, and industrial services. These sector-specific initiatives commonly use a value chain approach.

Value chain work on a broader scale started at UNIDO with analytical work at the research department on the apparel industry (Gereffi/Memedovic 2003), the agri-food sector (Humphrey/Memedovic 2006) and the furniture industry (Kaplinsky et al. 2003). The focus of project related work has been on how to conduct industrial value chain analysis to meet sustainable industrial development goals. Main value chain-related activities of UNIDO involve (Stamm/von Drachenfels 2011: 14f):

- In AGR, UNIDO has used the value chain approach for quite some time to target the interface between agricultural production and agro-industries.
- In ITU, UNIDO has established a Network of Investment and Technology Promotion Offices (ITPOs), which assist firms at different value chain stages to develop investment proposals on value chain upgrading. SPXs offer services in the area of supplier–buyer matchmaking and fostering the creation of linkages with manufacturing firms that are situated further downstream in the value chain.
- In CBL, the revised cluster approach focuses more on cluster-external factors and business networks and linkages, making it more related to value chain approaches. In particular supplier development projects in the automotive sector have an explicit focus on linkages along value chains.
- In CUP, newer documents on classical IU stress the importance of focusing more on groups of firms, including cluster and value chain approaches.
- In TCB, UNIDO has used the value chain approach to help countries respond to market and standards requirements and regulations.
- With regard to sustainable use of resources and energy, UNIDO uses value chain approaches in greener production and resource efficiency projects.
- With regard to industrial policy, UNIDO recognizes the importance of sectoral prioritization and value capture within value chains. The policy advice group uses value chain analysis to identify bottlenecks and opportunities to pinpoint sector-specific recommendations to policy-makers.

Different value chain concepts and approaches are used in these branches that not all encompass a systemic view. This can be seen in the various publications on value chain diagnostics and methodologies within UNIDO.[6] However, there is an ongoing process to develop a more consistent value chain approach initiated by AGR that can be most clearly seen in the publication of the "Industrial Value Chain Diagnostics" (UNIDO 2011). In this and other publications a systemic approach to value chains, including different levels and private and public actors as well as crucial concepts such as governance structures, the demand side and the role of lead firms, is developed. However, this systemic approach is not yet common practice at UNIDO and there are still varying concepts and approaches used.

The three projects classified under "value chain based IU programmes" are SPX, projects in the automotive components sector, and interventions in the leather, textiles and agro-food sectors that are discussed individually in the following. Sample projects that built the evidence base for the assessment together with programme level documents are the SPX project in South Africa, the automotive development projects in India and South Africa, and the leather sector related projects in Ethiopia.

5.2.1. Subcontracting and Partnership Exchange (SPX) Projects

Outsourcing and subcontracting are important characteristics of the globalization process. Transnational corporations (TNCs) have concentrated on their core competencies and outsourced other activities for which they seek suppliers around the globe. In this context, UNIDO has established 75 Subcontracting and Partnership Exchanges (SPXs) in more than 30 countries over the last 25 years with the objective of helping local firms to take advantage of the opportunities that evolve from subcontracting and outsourcing by gaining access to value chains in local, regional and global markets.

A challenge of SPX centres has however been their sustainability as out of the 75 established SPX only around 25 are fully operational today (several of them not

[6] Methodologies of UNIDO's value chain approach have been recently published in "Agro-Value Chain Analysis and Development: The UNIDO approach" (UNIDO 2009), "Value Chain Diagnostics for Industrial Development – Building blocks for a holistic and rapid analytical tool" (UNIDO 2009), "Agro-Food Value Chain Interventions in Asia: A Review and Analysis of Case Studies" (Henriksen et al. 2010), "Pro-Poor Value Chain Development: Practitioner's Guide" (UNIDO/IFAD/DIIS 2011), and "Diagnostics for Industrial Value Chain Development - An Integrated Tool" (UNIDO 2011).

under the UNIDO name as they continued independently). There is also only one country where the extended SPX approach has been used so far and were benchmarking activities have been conducted which is South Africa. Projects in other countries using the extended SPX approach are in the pipeline.

In contrast to the other types of value-chain based IU projects, SPX has no explicit sectoral focus but SPX member firms are concentrated in the metal sector followed by plastic, paper and packaging, rubber, textiles and industrial services (i.e. maintenance, repair). On the buyer side, the main sectors covered are oil extraction, mining, large infrastructure projects, electricity generation, automotive and the food and drinking industry.

Main characteristics

The initial SPX approach was primarily an information portal for profiling suppliers and matchmaking suppliers and buyers. Hence, SPX provided information services, promotional services and some advisory services. This intervention has been effective in middle income countries with a developed industrial structure and supply base where this information and linking function was sufficient to bring suppliers and buyers together by addressing information asymmetries.

In the context of lesser developed countries particularly in SSA, where there is no critical mass of supplier capacity and the participation of local firms as subcontractors or suppliers to TNCs has been limited, UNIDO saw the need to enrich the traditional SPX approach by including a benchmarking and upgrading component. This extended SPX approach shares similarities with and complements classical IU programmes. To date, the extended approach has however only been implemented in South Africa, a more developed country, and not yet in LDCs.

A central component of SPX projects is the establishment of SPX centres in a private or public institution. These centres carry out the following tasks:

- Collection of technical information on the manufacturing capabilities and capacities of their member (profiling)
- Establishment of comprehensive, computerized databases of firm-level information (database)

- Matchmaking services to link subcontractors with contracting firms seeking partners to manufacture their products or provide them with services (matchmaking)
- Organization of international promotion events such as partnership days, reverse fairs and subcontracting fairs (promotion)

In the extended SPX approach, the profiling and matchmaking functions are complemented by buyers' needs assessments, supplier benchmarking and linking of suppliers to service providers. The new approach involves actively engaging with the buying departments of large firms and identifying and mapping their requirements and needs. Potential local suppliers are not only profiled but also conduct benchmarking largely based on self-assessments through a benchmarking expert using UNIDO's benchmarking tool. The benchmarking should help firms assess their own competitive position and understand their weaknesses and gaps with respect to buyer expectations. This assessment can then be the basis of the development of specific upgrading and investment plans. The SPX centres do not directly provide TA but link firms with existing support institutions, including other UNIDO services that more actively engage in IU activities.

The whole profiling and benchmarking process with the SPX programme takes around 1-1½ months and involves the following steps:

- Profiling: Overview of all potential local suppliers as representative as possible to be able to provide information on the local supply base and profiles of local firms (including half-day firm visits)
- Market signal: Approach buyers and ask about their interest in local firms based on the profiling information
- Benchmarking: The benchmarking has two dimensions - performance indicators and an qualitative assessment of business practices, generally involves a two-day firm visit of the benchmarking expert of the SPX office that is mostly an industrial engineer, and has the following steps:
    - Performance indicators based on information from balance sheets and profit and loss sheets
    - Business practices where a team of managers comments on qualitative statements about the firm in the form of a qualitative self-assessment convened by a benchmarking expert who is a

facilitator in reaching consensus (first visit, ½-1 day spent with questionnaire and managers)

- The benchmarking consultant firm conducts the comparison with global standards and averages based on their firm database
- The benchmarking expert interprets the results, writes a report and discusses the report with mangers (second visit, ½-1 day)

- Training or linking with support providers: If a group of firms face similar issues, SPX centres can organize training activities with service providers or connect firms to service providers, including other UNIDO services or IU offices that are more directly involved in IU
- Continuous benchmarking: The idea is that firms learn how to conduct the benchmarking process by themselves and repeat it around once a year in the context of continuous improvement.

The SPX supplier benchmark report covers two areas. Part A examines the business performance, with regard to the numerical data submitted by the firms. The results are presented graphically and cover the firm performance related to the areas vision and financial (cost management, productivity, financial stability), customer (product quality, services quality, customer responsiveness), learning and growth (leadership, human capital management, safety and health and environmental management), and internal process (operations management, supply chain management, information management, corporate governance). In this part it is compared how firms are performing against a chosen sample of firms. Part B reflects the results of the team consensus exercise, which examines the perceptions of how well the business manages key processes. The report concludes in part C with a summary of findings as well as recommendations which could be the basis for a more detailed upgrading plan. The SPX advisers work with the firms to agree on the content of the recommendations and can also support the firms to implement action plans based on the recommendations.

Assessment

Focus on linkages: A main characteristic and advantage of SPX compared to other IU programmes is the explicit focus on linking local firms to buyers. Several other IU programmes assume that after IU access to new orders and buyers will follow more or less automatically. This is however not the case and initiatives to approach buyers and to understand and adapt to their specific requirements are often necessary. Particularly the extended SPX approach that focuses on specific

buyer requirements is useful in this regard leading to a better understanding of their procurement and subcontracting strategies and of the need to develop strategies to fulfil these requirements. Another feature of the extended SPX programme is the supplier-service provider matching. The role of the SPX centre is generally to act as a contact point or facilitator by linking firms to specific resources and services. This coordinating role compared to a uniform "do-it-yourself" approach of attempting to house all resources within SPX centre could be highly useful particularly given the importance of collaboration and synergies between different services and service providers. To what extent SPX centres fulfil this role in reality remains however to be seen.

Link to local sourcing: SPX projects not only focus on exports - as at least implicitly many IU projects - but specifically on increasing local sourcing and subcontracting. Hence, the programmes are related to the objective of increasing local content through the substitution of imports (see for example the SPX project in South Africa). An interesting characteristic of the SPX programme in South Africa is its link to two large public firms which provides a link to local content regulations and public procurement policies that can be used complementary to SPX. The background of this focus was to maximize the impact of infrastructure development programmes on local industries by increasing the capacity of local suppliers to respond to the demands of large public firms that are implementing the infrastructure projects.

TNC and buyer involvement: The viability and success of SPX programmes depends on a demand-driven focus that takes into account the service and product requirements of TNCs and large domestic firms. This is necessary to be able to get an insight into their requirements and secure orders and to expand the functionality of the SPXs beyond merely channelling requests for quotations (RFQs) and promoting SPX member firms through international events. Major buyers and contractors must be actively engaged as partners. It has however been difficult to involve buyers and strategies are needed to leverage the commitment of buyers. In particularly TNCs and foreign investors are reluctant to be involved, share their detailed requirements and trust the information, audit and benchmarking of other actors, including SPXs. Trends such as supply chain rationalization and consolidation and the reliance on core suppliers with whom firms develop close and long-term relationships, global sourcing strategies which involves working with global first tier suppliers through co-sourcing and co-location strategies, provide opportunities for more developed suppliers to build

closer relationships but challenges for lesser-developed suppliers for whom entry barriers have increased. As is has become more difficult to assess value chains of foreign firms, more effective in the short-run may be the focus on large domestic firms that are lead firms by themselves or first tier suppliers as well as on public procurement bodies.

Light methodologies: Compared to the methodologies used by other IU programmes, the benchmarking methodology used in the context of the SPX programme in South Africa is a very light approach and it is questionable how useful it is in providing a basis for IU activities which may require a deeper assessment. The methodology is also largely based on self-assessment which requires that managers provide honest assessments on processes in the firm which would require some verification to ensure the adequateness of this information. This would involve a stronger involvement of the SPX centre in the benchmarking and firm-level assessments which requires a stronger capacity-building and training component. Problems relate to firms not seeing the benchmarking activity as relevant and thus not using the results and also the one time nature of the benchmarking. The SPX programme currently undertakes benchmarking within a firm only once, with the firm's future access to benchmarking services unclear. The quality of the benchmarking also depends strongly on the SPX centre and the benchmarking expert. In South Africa, the benchmarking service offered by the SPX was rated well by some firms but was seen as irrelevant as a pre-condition for inclusion on the supplier database by others.

5.2.2. Automotive components sector

Context

Local and global car manufacturers and first tier suppliers are demanding high standards with regard to costs, quality and delivery. In this context, UNIDO receives regularly requests to support small and medium-sized component manufacturers in fulfilling these standards and accessing supply chains of car manufacturers. UNIDO has several types of projects that target component suppliers in the automotive sector and particularly small and medium sized enterprises (SME), including supplier development that focuses on technical and process-related upgrading of suppliers, investment and business linkages that includes the SPX programme discussed above, and low-carbon automotive supply chains that is not discussed in the present TE. The first supplier development

programme in the automotive component sector took place in India in 1999 followed by South Africa, Serbia, Russia, Belarus, Colombia, India and the Ukraine.

Main characteristics

Main activities covered in supplier development programmes in the automotive component sector are to advise policy makers to develop and implement support schemes for the industry, strengthen industry support institutions, promote green growth, and support IU at the firm level, particularly focusing on SMEs to overcome challenges related to low productivity and quality and to facilitate integration into global automotive supply chains. Projects are based on similar concepts and tools but there used to be no common document that describes the approach and activities of these programmes. But in 2011 UNIDO embarked on a process of reviewing its activities to develop a more comprehensive and strategic approach to support the automotive industry. In this context, an Expert Group Meeting (EGM) took place in October 2011 to discuss lessons learnt from different projects with the objective to better integrate and complement available TC and services and develop common approaches, methodologies and a programmatic document in the form of a Strategy Paper (UNIDO 2012).

Supplier development in the automotive sector is based on the Japanese concepts of lean management and continuous improvement and focuses on optimizing production lines, machinery operation and ware housing by restructuring and improving production processes through soft interventions. The emphasis is on direct firm level support through benchmarking, counselling and training. However, developing capacities of counsellors and/or private and public institutions is an integral part of supplier development programmes. In India for instance, the main objectives of the project are to provide direct firm-level assistance to enhance performance of domestic SMEs, expand the scope and outreach of the programme to upgrade the competitiveness of an increasing number of target firms, and ensure sustainability of the programme through creating a conducive institutional set up and building a pool of well-trained national engineers and counsellors. The main objective of the project in South Africa is to improve the competitiveness of South African SMEs in the automotive component industry by enabling the industry association to provide continuous improvement services on a stand-alone commercial basis. In most projects industry associations have an important role in the design and

implementation such as in South Africa and India where in the later case the programme was even initiated by an industry association.

Projects generally focus on firm-level training interventions on advanced manufacturing and quality management techniques delivered by industry counsellors. These services are generally provided through international and national counsellors that are placed at the firms for some time to identify and propose solutions to shortcomings in the production process. Through class room training and the coupling with international counsellors to conduct firm-level work, national counsellors are trained within the project. The services provided to firms generally comprise:

- Class room training for firm employees conducted by counsellors
- Shop floor visits with "hands-on" instruction by counsellors in the following areas (mostly process upgrading): productivity improvement, quality improvement (standard operating procedures), employee motivation, safety and accident prevention
- Review meetings to monitor progress and exchange experiences
- Visit to other participant firms to learn from each other
- Exposure visits to model firms to observe best practices in the industry

Assessment

Cluster approach: A key element of the automotive supplier development project in India was the formation of regional clusters. A UNIDO-trained counsellor was assigned to each cluster to accompany the cluster firms over a 30-months period. Firm-level interventions and monthly peer review meetings were guided by the counsellor and concentrated on total quality management, tracking of progress at the firm-level, and joint learning (e.g. through visits to exemplary firms and exchange of experiences with other cluster firms). This cluster approach was key to initiate learning and linkages between suppliers but also as a cost-effective means of implementation organising training and other TA activities on a group of firms' basis.

The final report on the project in India states that the cluster approach has been chosen "to cover an increasingly bigger number of firms and to enhance performance not only at the level of each individual company, but by facilitating joint activities for greater collective efficiency and enhanced economies of scale and scope at the cluster level." (UNIDO 2010)

In South Africa this cluster approach and meetings between participating firms to share lessons and ensure learning and linkages has however not worked as firms were reluctant to share information. The reasons why the approach worked and was a central pillar of the project design in India and not in South Africa remain to be understood.

Continuous and sustainable improvement: Capacity building is important to make automotive supplier IU programmes effective and sustainable. The projects in South Africa, Russia, Serbia and the new project in India focus on strengthening industry support institutions and associations of automotive component manufacturers. However, the involvement of industry associations has not always been sustainable. For instance, in the project in India there was very limited involvement of the industry association in the last phase and there existed nearly no linkages to the other programmes of the association. This is problematic given the limited number of firms covered in the pilot interventions and questions upscaling and impact.

A further concern with regard to sustainability is that contacts with firms ended after the 30 month cycle of training and coaching. Once a project phase was concluded, for the next project phase new firms were identified and selected, as if "upgrading was done" as far as the project was concerned, with no post-project tracking how the performance of the participating firms evolved thereafter. Assuring management ownership of beneficiary firms is critical in the identification of themes, the assessment and the implementation of activities to ensure there is understanding and support at the highest level.

Relevance and value added: UNIDO has long experience in the automotive sector and IU programmes in the automotive supplier sector are generally highly relevant for Governments due to the dynamic nature of the sector with regard to employment, investment, technology transfer, skill development and local, regional and international linkages. Many Governments have also explicit policies for the automotive sector and related industries with the objective to develop domestic capabilities, particularly with regard to component suppliers as the original equipment manufacturers (OEMs) and increasingly also first tier supplier level has become highly contested.

Besides this high relevance of the sector, a crucial question is if UNIDO can provide value added. Target firms of automotive supplier development programmes are generally SMEs at the tier 2 or 3 levels. However, it has been challenging to reach these firms in India and South Africa and projects tended to

focus on firms at the tier 1 and to a lesser extent tier 2 level. There have been also generally difficulties in attracting the targeted number of firms, especially with respect to the benchmarking activity. This difficulty in attracting firms can be attributed to firm fatigue due to the large number of programmes trying to improve the competitiveness of manufacturing firms in India and South Africa. Particularly if UNIDO services are for free, they may create market distortions and crowed out existing service suppliers and programmes.

Adapt to country context: A central question is therefore how to adapt the programme to countries like India and South Africa where there exist different services and support institutions. A focus on smaller firms and lower-tier indigenous suppliers that are not addressed by existing services and are generally not able to afford services at market prices might be useful as planned in these projects but the question is how such firms can be reached. An assessment of the selection channels that often work though business associations is necessary to identify why these firms are not reached and how they can be reached. This will have to be addressed systematically and a viable business model that resonates with lower-tier suppliers is critically needed. Two approaches cited in the EGM proceedings were: (1) peer review among firms at a similar tier level and facing similar challenges, where enlightened managers engage with not yet involved firms and (2) best practice visits along the supply chain at a certain tier level where "seeing-is-believing" effects may be achieved (UNIDO 2012). A mapping of actors in the automotive value chain will be necessary to understand where existing and potential lesser-tier local suppliers are located.

UNIDO could also have a linking or facilitating role between the different services and institutions. However, UNIDO does not seem to have such a role; to the contrary there seems to be no good overview of and collaboration with existing programmes. An assessment of the existing service provider landscape will not only service to make the intervention more relevant but also to use synergies with related interventions. For instance, in South Africa there are many interventions that target automotive component supplier, largely tier one suppliers though. These interventions take place on a larger scale and may also have different objectives than UNIDO interventions. A useful UNIDO intervention in this context would not be to counteract this consolidation process but to build on it and for instance focus on the suppliers of these first tier suppliers by developing the capabilities of lower-tier suppliers and increasing local sourcing.

5.2.3. Agri-business projects

AGR is the only UNIDO branch that has a sector-based mandate, i.e. providing specialized services for agro-industrial development. AGR has a focus on the sub-sectors of food processing, leather and leather products, textiles and garment, wood and non-wood forest products, and agricultural equipment/machinery. Its overarching objectives are to link resources and markets in agri-business value chains, strengthen forward and backward industrial linkages to improve employment and income opportunities, and support economic transformation and sustainable livelihoods. The main activities of AGR are to provide TA and capacity-building services, promote investment in agribusiness and value chain development, and undertake Global Forum activities in agro-based and agro-related businesses and industries.

Main characteristics

The sector-specific and technical engineering approach is different to other branches that have a more generic perspective. Although sector expertise has declined, many AGR projects have still a technical orientation towards addressing problems on the "shop-floor level" and offering practical solutions in product development, technology, production control and marketing. The value chain approach is largely used to target the interface between agricultural production and agro-industries.

Projects in the leather sector generally focus on different levels including institutional capacity building (meso), firm-level interventions (micro), and to varying extents policy advise (macro).

- Capacity building focuses largely on contributing to establishing or strengthening industry associations, industry-specific technical centres, training institutes or common facility centres. In these institutions management processes are commonly improved as well as training capacity through training of trainers and development of curricula. A main objective of most interventions is to train local experts and to work with or establish common facility centres that offer training and/or other services on a sustainable basis.
- The firm level component involves benchmarking or other assessments to identify bottlenecks and priorities and funding soft interventions. Firm selection for pilot interventions is generally conducted through associations and based on technical and size related criteria. Pilot firms

also have to agree to open their doors to other firms to show the results of interventions. Firm-level interventions differ in terms of depth and technological level depending on the sub-sectors. As in most other IU projects a catalytic approach is stressed where UNIDO interventions at the firm level should work as a demonstration for wider replication.

- A typical macro level output in AGR IU projects is the development of a national sector strategy. Advice to governments on policies and sector strategies takes however place to varying extents in the different types of projects.

UNIDO has conducted leather sector projects for four decades in Latin America, Asia and Africa involving capacity building of support structures, TA to manufacturing units and pollution control of tanneries. In this context, UNIDO has engaged in skill development and technology upgrading across the entire range of operations in the leather value chain.

There are three types of projects focusing on (i) raw material, i.e. hides and skins treatment and improvement, where a focus is on quality that is critical for the processing stages, (ii) tannery operations upgrading where most projects are concentrated and an environmental focus is generally added given the crucial environmental issues related to tanneries, and (iii) finished leather product manufacturing, i.e. footwear and leather products, including activities in design and marketing, pattern making, management and operator skills.

Leather projects generally work on two levels – at the micro level, pilot firms receive assistance to increase productivity and quality which are used as demonstration cases for wider firm level interventions and, at the meso level, projects establish and strengthen trade associations and training centres which ensures the dissemination and sustainability of firm level improvements. Hence, UNIDO's leather-based industry development projects have covered the following areas (UNIDO 2010b: 2f):

- Providing direct assistance to industrial units (primarily private SMEs) in evaluating business opportunities, finding or establishing markets (niches), building product ranges, improving production methods and product quality, enhancing productivity, and developing labour and managerial skills.
- Developing human resources by (i) elaborating and implementing comprehensive professional training systems; (ii) establishing and/or

rehabilitating national, (sub)regional and international training-cum-service institutions; (iii) implementing experts meetings, workshops, seminars and special training courses in design, technology and management related areas; (iv) initiating, organizing and monitoring cooperation among training, service and R&D centres operating in developing and industrialized countries.

- Environmental protection and pollution control directly related to leather processing and leather products manufacturing - pollution control with special reference to implementation of cleaner technology has been, and continues to be, the main focus of UNIDO's activities in the field of leather processing.
- Preparation of publications and maintaining databases of leather-related marketing and trade, design and product development, technology, pollution control, information sources and quality requirements, as well as training opportunities.

Assessment

Relevance and value added: IU programmes in agro-industrial sectors are generally highly relevant for Governments given the potential value addition and employment, poverty reduction and food security impact of such interventions. Most Governments have explicit policies and strategies for food-related as well as light manufacturing sectors, most importantly textiles and leather that are seen as first steps in the industrialisation process by many LDCs. A major strength of the project in Ethiopia has been its relevance and alignment with national strategies and plans.

A key element of AGR projects, in particular in the leather and textiles sub-sectors is the existence of in house technical and engineering sector expertise. This is different to other units and their more generic approaches. The detailed sector know-how is an advantage as it allows UNIDO to work directly with firms and industry associations or technical centres. However, it also reaches its limits as not all challenges to competitiveness and particular IU can be tackled at the firm level but require more generic interventions. Hence, there is potential to combine sector expertise more consistently with generic perspectives.

Sector-wide value chain approach: A characteristic that is key to AGR projects as well as SPX and supplier development projects is the focus on value chains and linkages with other firms. Projects in the leather and textile sector focus however

largely on the technical engineering side of value chains, including firm-level interventions related to production processes and quality as well as forward integration into processing and/or backward linkages. These interventions are crucial but other important aspects, most importantly the role of end markets, demand and buyers or lead firms are not always sufficiently taken into account even though they dominate standards and requirements in particular in the textiles and leather sectors. Also linkages and synergies between firms at the horizontal level are not sufficiently addressed where a network or cluster perspective could support efficiency and upgrading.

Although AGR stresses its focus on the link between processing or manufacturing and the raw material and agriculture side of value chains, these backward linkages and potentials for value addition are surprisingly seldom explicitly considered in the design of projects. As the Agri-business/Agro-industry TE states (UNIDO 2010b), several of the textile subsector interventions mention the strong links to cotton farmers, aiming at income and employment generation among producers of raw material. But these backward linkages in the value chain do not seem to be explored and no attempts are made to assess the impact among agricultural producers. In the leather sector projects in Ethiopia backward linkages are however part of the project as the limited existence of local linkages to component suppliers were identified as a crucial challenge to the competitiveness of the footwear, leather garment and leather goods industries.

Systemic approach: The holistic sector wide approach including interconnected interventions at the micro and meso and to a lesser extent macro level is a main strength of AGR IU projects (similar to classical IU projects). In particular, projects in the leather related sectors in Ethiopia included policy support, capacity building of a technical centre, testing laboratory and quality control, firm-level upgrading, export market development, subcontractor development, "cleaner production", and cluster development. The focus on establishing and/or strengthening industry-specific associations or centres to ensure the sustainability of training and skill development and synergies is key in these projects. But it is not clear to what extent outcomes and impact at these three levels and in particular at the policy and capacity building level have been reached and how lasting they have been.

At the firm-level, the catalytic approach of pilot interventions is also not always ensured. In Ethiopia's leather projects there is for instance room for improving the transfer of know-how from the pilot firms and scaling up good practices as the

project does not extract best practices systematically and share them widely to stakeholders in the sector (UNIDO 2013c). In Ethiopia projects in the leather sector put emphasis on developing and improving capacities of industry-wide technical centres to carry out training and supply services with potential multiplier effects. However, the parallel project evaluation (UNIDO 2013c) concluded that there are still deficiencies in technical skills and which questions the sustainability of the institute's services.

Development of analytical Master Plan: In the leather related projects in Ethiopia, the basis of interventions was a detailed Master Plan. The Master Plan became an eye opener in terms of putting the leather and leather products industry in the GVC and it was embraced as the official policy document for the development of the sector. Through this assessment that used a systemic value chain perspective and different methods, priority sectors, bottlenecks and priorities along the identified value chains were identified. In the case of Ethiopia, the development of the footwear industry, followed by the leather garments and leather goods industry, was selected as priority sectors to create a strong demand of quality finished leather, urging the tanning industry to upgrade and create value addition in the country. Such an assessment as a basis for designing interventions allows for a comprehensive and systemic approach to IU. Further, it allows not only focusing on process upgrading but also on functional upgrading and backward and forward linkages and increasing local value addition and competitiveness along the value chain.

5.3 Cluster based IU programmes

It is widely recognized that SMEs and MSMEs play a key role in terms of employment and income generation in developing countries and that their development is often hampered by their isolation. Therefore, the CND approach aims at boosting the development of a competitive private sector and contributing to poverty reduction by building sustainable linkages both among SMEs and between SMEs, larger scale enterprises and support institutions. Such linkages are expected to overcome obstacles resulting from isolation and to enhance firm competitiveness through the realization of economies of scale and scope, benefits of agglomeration economies (e.g. increased negotiation power, better access to markets that demand higher quality, incorporation of more expensive technologies, easier access to subcontracting relationships with large scale enterprises), joint efficiency and joint actions. In this context, UNIDO has implemented technical cooperation projects focused on CND since the mid-1990s.

Over this period, more than 60 projects were carried out covering 23 countries. The core elements of the overall programme are country-level projects that include pilot projects for CND (since 2000), export consortia and activities to foster upscaling and local ownership of the CND approach. Sample projects that built the evidence base for the assessment together with programme level documents are the cluster twining (CT) projects in India and Vietnam.

Main characteristics

In the TE on CND interventions, clusters are defined as agglomerations of interconnected firms and associated institutions. Firms in a cluster produce similar or related goods or services and are supported by a range of dedicated institutions located in spatial proximity, such as business associations or training and BDS providers. Networks are defined as alliances of firms that work together towards an economic goal. Networks can be established between firms within clusters but also exist outside clusters and can be horizontal and vertical. Horizontal networks are built between firms that target the same market, such as a group of producers establishing a joint retail shop or different firms each specializing on parts of the process for one common product. Vertical networks are alliances between firms belonging to different stages of the same value chain (buyers and suppliers), leading to supplier development schemes or buyers assisting their suppliers to upgrade. The main difference between clusters and networks with regard to UNIDO programmes is that in the network approach the target is a group of firms with a common business initiative, whereas in cluster development the target is primarily a set of institutions (business organisations, municipalities, co-operatives, universities, public or private service providers, etc.).

UNIDO CND programmes typically consist of two main elements: (i) TC in formulating and implementing CND initiatives that generates pilot projects in the client countries and (ii) upscaling CND efforts through institutional capacity-building and policy advice with a view to fostering the dissemination of CND policies on the regional or national scales and enable local authorities to undertaking their own self-initiated CND effort. CND programmes therefore work at two different, parallel and simultaneous levels: direct interventions through pilot projects and indirect interventions at the policy level leading to upscaling. Typical activities in CND projects are:

- Carrying out diagnostic studies, including CND mapping (i.e. formulating a taxonomy of existing clusters and networks in a region or country)
- Providing awareness-raising initiatives through seminars and workshops;
- Arranging training for policymakers and cluster development agents (CDAs) involved in CND
- Organizing study tours for beneficiary firms and staff of institutions involved in CND support
- Giving advice to firms that form horizontal and vertical networks, clusters and export consortia (e.g. formulating joint business strategies, business plans, group coaching) through CDAs
- Preparing tailor-made methodologies or guidelines for promoting CND in the context of the client country (used in advice/training)
- Monitoring and evaluating networks and cluster development initiatives

For these areas of intervention, methodologies and guidelines have been developed. The methodologies are similar for clusters and networks in so far as they start with a diagnostic and selection phase, then move to trust building and the establishment of a governance structure of the network or cluster and, finally, stimulate joint actions and consolidation of the cluster or network. The UNIDO approach differs from other donors' programmes in terms of its smaller size of interventions, its focus on forming "social capital", and its reliance on local expertise with international expertise involvement invoked primarily in the start-up phase.

Export consortia are specific types of network programmes that focus on networking with the target to support export development, promotion and market access. Hence, export consortia are networks of around 5-15 firms that share a common objective in initiating or increasing exports. Services in the context of export consortia involve largely support in organizing the network and building management structures and promotion incentives. Export consortia are a lighter approach than cluster initiatives and generally include the following activities: (i) identification of firms with complementary products through contacting business associations and organization of a starting workshop; (ii) assistance in grouping process, including network building and the development of a business plan by the members; (iii) promotional activities and the management of the group are not funded but links are provided to export promotion agencies and other service

providers to access funds for trade shows, business missions and other promotional activities; and (iv) IU activities are not provided directly but links to service providers are established and joint activities of firms are supported that may relate more closely to IU. More recently export consortia have been extended and more explicitly related to IU. Similar to SPX programmes, in middle income countries in MENA and Latin America where industrial structures and exportable products are available linking firms and providing promotional support was enough for firms to start and/or further exporting. But low income countries, particularly in SSA, need more support as there are often no exportable products available. Hence, the extended approach extends from pure networking to capacity building and more hands on IU support. This approach has been first implemented in the Ivory Coast.

The CT approach has been also used by UNIDO. CT can be defined as a series of cooperation activities among firms or stakeholders, including cluster associations, between a developed and a developing cluster. The objective is to ensure cluster developing by working with developed clusters focusing on initiating technology and skill transfer and business linkages. This approach is distinct to UNIDO's general cluster development approach that focuses on work within a country. CT involves the following steps: (i) selection of and diagnostic study of developing cluster; (ii) selection of developed cluster(s) and stakeholders for twinning and conclusions of Memoranda of Understanding (MoU); (iii) trust building between clusters; and (iv) action plan preparation and implementation, including study tours, diagnostic studies and firm audits, class-room and on-site firm training. If the clusters in question are strong enough in terms of capacity, intervention focus more on matchmaking and developing a platform that can facilitate access to information. However if clusters are less developed preliminary efforts should be towards advocacy and creating trust.

Assessment

Joint efficiency and actions: A characteristic that is key to CND programmes is the broader focus on efficiency and productivity issues that lie outside of the individual firm and involve linkages with other firms in the form of joint efficiency and actions. The key contention is that there are limits to intra-firm competitiveness as the environment of firms, in particular their linkages and collaboration with other firms as well as support institutions is crucial to enable and strengthen competitiveness and IU. Some other IU programmes as the

automotive supplier development programme in India use the cluster approach and the related learning and synergies related to focusing on inter-firm relations. But in these cases it is often more seen as a cost-effective means of implementation. This is valuable but often misses broader aspects and competitiveness improvements by working with groups of firms related to joint efficiency and actions.

External linkages: The cluster approach focuses principally on linkages and interactions between local firms and institutions stressing particularly horizontal collaboration. Cluster approaches however often overlook global dynamics and the relations to firms and institutions outside of the local environment and the link to markets. Vertical linkages and generally linkages with actors outside of the cluster are not always explored and developed sufficiently in design and implementation of CND projects. The TE on CND initiatives (2010) states that a "stronger value chain approach would not contradict but rather deepen the CND approach. This should include the analysis of trends in international demand, consideration of market access obstacles and opportunities derived from international and bilateral negotiations, and the distribution of rents across value chains and areas of international specialization." This has been taken into account at UNIDO. Whereas UNIDO's earlier cluster approach had a strong internal focus working with existing clusters and mobilizing internal knowledge and resources, newer approaches put more emphasis on external linkages to firms outside clusters, global dynamics and value chains.

Pilot logic: CND interventions follow a pilot logic, i.e. they help to establish well functioning clusters and networks that demonstrate the benefits of CND. However, this pilot logic is not always made explicit in the interventions' design and in the overall programme logic. Hence, the design of CND interventions at the country level does not always make effective use of the pilots by including specific outputs and related activities to utilize pilots for capacity-building and policy advice. The results at the pilot project level have generally been positive in terms of competitiveness. The evidence on the degree of effectiveness with regard to institutional outcomes (capacity-building, enabling environment for CND) is however less systematic and pilots have not always generate broader replication which is however necessary to ensure broader impact besides the directly targeted clusters and networks. Also regarding CT, impact on client firms is generally positive but pilots were only conducted at very few firms; systemic impacts in terms of replication, cluster development, and impact at the service provider,

association or sector level have been limited at most. One area in India can serve as an example, where hundreds of leather and shoe factories operate, but the project worked with seven clients only (UNIDO 2013a). In Vietnam, only some 40 firms have profited individually from CT activities (UNIDO 2013b).

Rationale for cluster twining: A crucial assumption of CT projects is that there is a win-win situation between developing and developed clusters. A sound pre-project assessment on the actual demand and interest for twinning in the developed country is therefore essential. Mistakes in predicting interest and commitment by the developed partners can make twinning efforts ineffective. In the cases of India and Vietnam, presumed win-win situation were not obvious for clusters and firms in developed countries. Twinning efforts ran into problems due to the deteriorating situation in Italy in the context of the economic crisis and as firms in India and Vietnam were perceived as competitors and not partners (UNIDI 2013a, 2013b). Also in developing countries, firm demand for the project's offer was not impressive in India and Vietnam. Firm-level business relationships already existed in the sectors targeted and a more flexible and demand driven approach would have focused on strengthening these already existing relationships and processes.

Further, the sectors selected did not really have clusters understood as more than a spatial concept since linkages and cooperation are very weak or non-existent. But there were no sufficient resources to actually develop clusters. Hence, it is questioned if CT can be a means for cluster development and if not functioning clusters are an precondition for a project that intends to promote CT. CT could be also seen as an outcome of cluster development in specific cases where win-win situations exist (UNIDO 2013a, 2013b).

6. Evaluation by DAC Criteria

This section assesses the different types of interventions relevant to IU (see table 3 above) along the following evaluation criteria: (i) design, intervention logic and systemic approach, (ii) relevance and synergies, and (iii) effectiveness, sustainability and impact.

6.1. Design, intervention logic and systemic approach

A range of interventions relevant to IU but without an explicit common strategy:

The UNIDO IU portfolio includes a range of interventions that are complementary to "classical" IU programmes and can contribute to a more comprehensive and holistic approach to IU (see Table 3). There are certain elements that are characteristic of most UNIDO IU activities such as the important role of capacity development of BDS consultants and institutions and the pilot character of firm level interventions. But there are also important differences: Initiatives (i) focus on different dimensions of IU and levels of interventions; (ii) use different approaches, tools and types of firm-level support; (iii) address different beneficiaries from individual firms to groups of firms, clusters and value chains; and (iv) vary in terms of depth, duration and funds.

The broad and in-depth "classical" IU programmes approach the micro, meso and macro level and normally include access to finance for firms through an "upgrading fund" or similar financial instruments.

Sectoral projects, in the textile and garment, leather and footwear, wood and agro-food sectors in AGR, supplier development projects in the automotive component sector in CBL, and SPX programmes in ITU are most relevant to IU. These sectoral projects generally have an explicit value chain perspective. SPX started largely focusing on profiling and matchmaking activities. Recently, and particularly in the context of projects in South Africa and lesser developed countries in SSA, the SPX approach has been expanded to benchmarking, certain training activities and linking to service providers that more broadly support IU interventions.

CND initiatives focus on cooperation and linkages among firms and between firms and support institutions which is seen as important for increasing efficiency and competitiveness at the firm level. As is the case with SPX programmes, more recently particularly export consortia projects have been extended to include more directly IU activities given the demand in lesser developed countries particularly in SSA where linking firms and networking was not sufficient to be able to access export markets.

These three broad types of initiatives classified in the present TE as relevant for IU have no overall strategic guidance. There exist no comprehensive IU strategy, programme-level document and overall intervention logic for IU initiatives that would provide an overview of where different types of UNIDO IU interventions are located and how they interact with other interventions. There has been also little done to assess and compare the various approaches and interventions with the objective of identifying complementarities and best practices, and to develop common key performance indicators (KPI). This is problematic as the different IU initiatives have some overlap and synergies, complement each other and could offer valuable lessons learnt.

IUEC has addressed this challenge theoretically which is promising. Recent (not yet evaluated) IU projects seem to have successfully combined "classical" IU with SPX (case of Cameroon), with export consortia (case of Côte d'Ivoire) and with cleaner production (case of Senegal). However, the TE found no evidence that the "comprehensive and holistic approach" advocated under the IUEC has been consistently applied for the formulation of new IU initiatives (see section 5.1).

Limited link to Global Forum/research activities and no overarching analytical framework for IU:

IU TC interventions are not systematically linked and strategically related to UNIDO's Global Forum and research activities. The research department has conducted a series of studies on IU in GVCs, including the automotive, wood and furniture, garment and agro-industry sectors under the heading "Prospects for Upgrading by Developing Countries" in the early 2000s. More recently, country-level competitiveness analysis have been developed focusing on upgrading constraints and priorities. These activities are however often disconnected from TC. The potential of analysing main issues and questions coming from TC activities from an analytical perspective and using TC results in turn for research and broader lessons learnt is not sufficiently used at UNIDO yet.

A related problem is that UNIDO does not have a standardized analytical framework that could be used to conduct comprehensive assessment of the specific contexts of IU interventions and as a basis for decision making on how to configure and design IU projects for specific national and sector contexts. Further, the relation between the (upfront) assessment of the context and the strategic options and the (subsequent) design and implementation of IU projects has been "blurred". Such an analysis requires an (upfront) investment of time and funds which is hardly compatible with an emphasis to settle on priority sectors at the project design level in order to gain the required political mileage for IU projects. Moreover, traditional IU donors (for example the EU) are often not prepared to provide funds for analytical studies or if they are ready to fund such studies, they tend to prefer out-contracting and, in the case of the ongoing COMESA project, deliberately not to UNIDO to avoid conflicts of interest. So far only few TC projects have been linked to research activities. Positive examples are the leather related projects in Ethiopia where interventions were based on an in-depth analysis of the industry (Master Plan, see section 6.2) as well as the designed (but not implemented) classical IU project in Palestine that had an integrated approach, including the three components competitiveness analysis and market intelligence, enterprise upgrading programme, and market entry programme. The first component included training of the staff at the implementation unit in Palestine in conducting trade and industrial competitiveness analysis for country and sector diagnosis including macro, sector, product level and value chain analysis and the creation of industry and trade competitiveness observatory that centralized all industry and trade-related data. The output of the first component was planned to be used as an input for the second and third component as well as for the formulation of trade and industrial policies and strategies. The project was however never implemented; only an industrial competitiveness report was produced without going into much sectoral and value chain details.

Limited linkages between sector and generic expertise:

A key element of AGR IU initiatives is the existence of technical and engineering in house sector expertise because AGR is the only branch with a sectoral mission and structure. This is different to other branches and their more generic approaches where staff has expertise in areas such as trade policy, value chains, cluster development or a broader economic perspective. It is also distinct to most international organisations that do not have such detailed technological sector expertise. The detailed sector know-how is an advantage as it allows UNIDO to

play a direct role in the development of sector specific IU strategies and work more directly with firms and industry associations or technical centres.

However, it needs to be more systemically combined with generic approaches as not all challenges to competitiveness and particular IU can be tackled at the firm and sector level but require more systemic interventions. IU requires both – taking into account the technical and engineering side as well as more generic meso and macro issues. Hence, there is potential to use cross-organisational expertise and combine sector expertise more consistently with generic perspectives at UNIDO which could be a distinct value added of UNIDO. This has been done in a few cases in the context of "classical" IU projects where sector expertise has been brought in, e.g. the technical centres in the older IU programmes in North Africa and more recently the regional technical centre component and the „priority products" studies that were outsourced from BIT to AGR of the UEMOA programme. The leather related projects in Ethiopia are also a positive example in this regard.

In house sector expertise is however limited to certain sectors, in particular leather, textiles, food processing and to a lesser extent in some other agro-based sectors. Other sectors may be also relevant where UNIDO does not have in house expertise which leads to the question of how relevant detailed in-house sector expertise is versus the ability to provide more generic services and linkages to external consultants and providers. Even in sectors where UNIDO has long established programmes such as in automotive components, it has been realized that reliance on external sector-specific expertise is required in most cases and that the main focus of assistance could lie in facilitating more systemic approaches, dialogue, building of broader support programmes and institutional capacity building. Currently, there is no clear strategy with regard to in house sector expertise versus a more generic perspective. Discussions have taken place on this issue for some time in the context of UNIDO's overall strategic orientation, most pronounced in the context of supplier development projects in the automotive component sectors.

Holistic and systemic approach:

The Methodological Guide to IU (UNIDO 2003) stresses the need for a holistic approach to IU combining micro, meso and macro level interventions (the latter largely understood as developing a national IU strategy). This holistic approach has been implemented to different extents in different types if interventions, most consistently in the "classical" IU programmes and leather sector related projects

(see for example the leather projects in Ethiopia). In classical IU initiatives, IU is conceived as a holistic approach aiming at upgrading of firms and their environment, including BDS providers, technical centres or other industry specific institutions and policy. In practice, however, many "classical" IU projects focused on micro level interventions and the use of BDS consultants, the attention given to institutional capacity building, access to finance and policy formulation has been variable. In many cases, this is related to funding problems that made the practical application of the holistic approach to IU difficult. Even though projects may have been designed in a systemic way, implementation became patchy due to limited funding and donors picking certain activities that were aligned to their interests.

Macro level interventions:

UNIDO IU programmes generally focus on micro firm-level interventions and meso-level BDS-related interventions. If the macro-level is addressed, which is most systematically done in "classical" IU programmes and some agri-business IU projects, in particular leather and textiles, it generally refers to changes in the policy framework in the sense of the development of a national IU or sector strategy, the existence of a budget line for an industry-wide IU programme and the integration of the IU programme into government policies.

Broader macro issues such as the broader policy framework and business environment, including the regulatory environment (e.g. effective regulation, property rights, labour, product and factor markets), physical and bureaucratic infrastructure (e.g. energy, water, transport, customs, telecommunications, IT), macroeconomic policy (e.g. exchange rate policy, monetary policy, fiscal and tax policy), trade, investment and competition policy (e.g. tariff and non-tariff barriers, trade agreements), the national system of innovation (e.g. education, technology and R&D policies) and all types of industrial policies, are generally not addressed.

Given UNIDO's mandate, interventions do not and cannot focus on the broad macro environment but a more in depth analysis and broader understanding of the macro environment is crucial to assess the effectiveness and limits of meso and micro level interventions. Such an assessment of the "big picture" has not been systematically conducted as a basis for classical IU interventions.

UNIDO's IU interventions take place in the context of certain structural, market and policy conditions that may support or constraint IU processes. Hence, activities or policies to support IU or industrial development more general have to

take place at different levels. It is important that a comprehensive and mutually supportive approach is taken with regard to these levels. For instance, a selective policy to promote certain sectors and groups of firms would require a competitive exchange rate, an effective and accessible financial sector, a labour force with adequate skills, as well as specific sectoral support to develop specific skills, technologies and capabilities. Often these conditions are not in place and policies at these different levels are not aligned which may counteract and annihilate the effectiveness of isolated IU interventions. Even though UNIDO cannot act at all these levels, the interrelations between these policies and activities have to be taken into account when designing IU programmes and the fact that firm-level and capacity building IU initiatives alone might not resist adverse structural, market and policy conditions.

Meso level interventions:

Meso level interventions cover institutional support and capacity building in different areas, including the establishment and development of institutional and management structures (e.g. industry associations, IU offices, technical centres, SPX centres), financial services (e.g. through banks and financial institutions, IU funds, micro finance), training and R&D services (e.g. universities and research institutes, vocational training, technical training, management training), technical support services (e.g. ISO & HACCP certification, BDS providers, national consultants), market/buyer access services (e.g. promotion, partnership, matchmaking), and value chain alignment and networking services (e.g. clusters, export consortia, vertical linkages). Interventions at the meso level with regard to capacity building of local institutions, support providers and consultants are an important characteristic of most UNIDO IU interventions and ensure impact and sustainability. A danger of firm-level interventions alone is that they only reach certain firms and have no systemic impacts.

Most IU projects are involved in BDS capacity building. IU projects are largely engaged in the training of local consultants and thus building private consultant capacity. Some projects work however with existing private or public institutions such as technical centres and train employees or consultants of these institutions. The approach of training consultants and using these capacities for the delivery of firm-level interventions with regard to BDS and implementation support within the same project is very useful. It is a complicated and lengthy process but is crucial for ensuring effectiveness and sustainability on a broader industry-wide level. In some projects a challenge is however the sustainability of local

consultant capacities. A focus on training of experts that are linked to an institution (e.g. business associations, IU offices) could be useful in this respect to ensure the institutional embeddedness and sustainability of BDS capacities and the development and stimulation of BDS markets more broadly. The development or support of a sustainable BDS market which should be the final outcome of such capacity building interventions requires an understanding of the existing support provider landscape and the embedding of UNIDO projects in these existing activities. Without an assessment of the existing providers there is also the danger of crowding out when UNIDO services are provided at subsidised rates. Such assessments and the focus on stimulating BDS markets is however often not sufficiently included in UNIDO IU interventions. Hence, the good practice models promoted by the "Donor Committee for Enterprise Development" aiming at stimulating BDS markets are not internalized in the UNIDO approach.

At the meso level, there is also a focus on the National Quality System (NQS) that is closely related to IU. In UNIDO's "Compete - Conform - Connect" model "compete" stands for the ability of firms to produce competitively, "conform" for their ability to comply with international standards (SMTQ), and "connect" to access markets and buyers. Particularly classical IU programmes are generally linked to a SMTQ component that focuses on establishing and developing local standards and accreditation institutions that can be used by local firms to initiate in particular product upgrading (see for example the IPs in Tunisia, Algeria and Egypt). This linkage has become less effective in the more recent regional programmes in West Africa, where IU and SMTQ are being dealt with under separate programmes. Standards and quality infrastructure and services are clearly an important institutional aspect of IU. However, other institutions are also crucial in enabling firm-level and industry-wide IU, particularly R&D institutes and training and skill development institutions. Although this varies for different IU programmes, there is generally less focus on collaborating with and building capacity of local R&D institutes and training and skill development institutions. In particular vocational training institutions play important roles in enabling IU and in making IU initiatives sustainable and ensure the availability of relevant skills beyond the individual firm at an industry-wide level. Also to ensure the access of poor groups of the population to higher skilled jobs that are often an (intended) outcome of IU interventions would require accessible skill training.

Another crucial aspect at the meso level is access to finance which is an obvious function that needs to be in place for successful firm-level IU. The crucial

importance of financing institutions and schemes is reflected in the design of classical IU programmes where the set up and management of specialized financing mechanisms for IU, so-called upgrading funds, absorb a substantial part of the programme inputs. The main focus of such funds is distributing subsidies to beneficiary firms to encourage their IU investments. However, most other IU programmes are not linked to a financing mechanism and hence there is no direct link to funds for the implementation of IU interventions. In these projects it is generally assumed that firms will get access for IU interventions through sources external to the project. Access to finance remains however a crucial challenges in most developing and particularly low-income countries. At the design level this is a crucial part of classical IU programmes although there have been important challenges with regard to implementing upgrading funds and to make them work in an effective, efficient and sustainable manner, including long delays in setting up funds and for firms to get subsidies for their investments (see for example the classical IU projects in Algeria, Egypt, Senegal and UEMOA). Further, there are more general challenges related to such subsidy schemes leading to market distortions, crowding out and unproductive investments. Linking more effectively with banks and other financial institutions would be required which has been tried in some projects, most successfully in the classical IU projects in Senegal, also in UEMOA the financial sector has been analysed. In other classical IU projects, representatives from the financial sector were merely included in the SC and there with often limited actual involvement.

Micro level interventions:

Micro-level interventions are in the centre of UNIDO IU programmes. However, micro-level interventions need to be based on a systemic understanding of competitiveness that assesses firms in the context of value chains and their business environment, including other firms, such as suppliers and buyers and support institutions. The inherent limitations of firm-level interventions need to be recognized in order to avoid “lifting up” some randomly selected individual firms, which is of course insufficient to reach systemic impact. A systemic approach with regard to firm-level as well as capacity building interventions can be strengthened by using a cluster and particularly value chain perspective. The cluster perspective stresses inter-firm linkages and linkages between firms, service providers and institutions as crucial for competitiveness, and the importance of joint efficiency and joint actions to overcome challenges particularly for smaller firms in developing countries. In this sense, the cluster approach is relevant for a

systemic approach as it focuses on a dimension of competitiveness and IU often overlooked by approaches that focus on firm-level interventions but also as a mode of implementation that ensures cost-effectiveness and learning and synergies between firms. By focusing on the local level and local linkages, cluster based approaches however tend to miss the global perspective (see section 3). Here the value chain approach comes in and can be effectively combined with a cluster perspective. The value chain perspective helps to understand overall trends of industrial (re-)organization, market potential, and systemic competitiveness that not only depends on the individual firm but the groups of firms and institutions that are linked in value chains with a particular important role played by lead firms that govern these chains. It helps therefore in identifying priorities and leverage points for policy and technical cooperation interventions and is increasingly used by international institutions and donors, including UNIDO, to better target their support in various areas. In particular AGR uses a systemic value chain approach in their sector-level IU interventions (UNIDO 2010, 2011); in other IU interventions, in particular "classical" IU projects, a value chain approach is not consistently used.

One underlying reason for a non-systemic approach to firm-level interventions has been the lack of a clear rationale for firm-level interventions, and whether these are justified on the basis of a „pilot and upscaling" or a „picking the winners" approach. Generally IU interventions are based on the first approach and the common practice of using calls for tenders where firms can apply voluntarily to be part of IU interventions. But, tacitly, there has also been a different rationale of targeting key players in a country's sub-sectors of competitive advantage. More recently, discussions have intensified at UNIDO about revisiting the IU rationale in the light of "new structural economics". Although taking into account all the problems of picking firms, a solely voluntary approach may not be useful for pilots as targeting certain types of firms, e.g. more developed and innovative ones with employment and export generation and linkage potential to local firms (that may have been identified based on a pre-project competitiveness analysis) may be more adequate for a pilot approach. A merely voluntary selection process, however, does not ensure that these types of firms are reached. It remains to be established to what extend such an approach would be compatible with the current practice of selecting pilot firms randomly by calls for expressions of interest and with WTO rules.

Firm-level interventions generally involve a pilot logic with a link to meso level capacity building for wider replication, aiming at quick results that can be used to design and implement broader, often industry-wide IU programmes. There is, however, often no clear strategy of how to disseminate results, demonstrate benefits and replicate and "roll out" pilot interventions on a broader basis. The rationale of "upscaling" successful interventions at "pilot" firms has not always been effectively incorporated in design and implementation. Moreover, pilots are also often not given the means to experiment with different methods, monitor results, compare and evaluate their relative strengths and weaknesses and stress the "demonstrative" nature of the action before extending the coverage and scale of objectives and actions (UNIDO 2010a).

UNIDO IU interventions involve varying types of firm-level interventions from light and quick scans to in-depth strategic diagnostics. Hence, the methodologies of these interventions differ strongly, particularly with regard to the following aspects: (i) depth of the assessment with regard to detail and duration, (ii) business areas covered, and (iii) focus on individual firms, groups of firms, clusters or value chains. The most in-depth assessments are strategic diagnostic studies in the context of classical IU programmes that generally approach individual firms, cover several business areas, and can take up to one year (see section 6.1). On the contrary, profiling and also benchmarking activities in the context of SPX programmes are much lighter firm level assessments (see section 6.2). Efforts have been limited so far to assess these different approaches and methodologies in their respective contexts of application to draw lessons from these experiments.

- In the context of the classical IU programmes, firm-level interventions in the form of the strategic diagnostics have been criticised for applying a "one-size-fits-all" methodology and being too heavy and in-depth, lengthy and inflexible and not appropriate for certain firm and industry contexts particularly in lesser developed countries. Hence, a more flexible approach with regard to firm-level diagnostics has been developed. For example, in the programme in Syria, a quicker, more flexible approach was used. In the UEMOA programme, the strategic diagnostic was adapted to a more flexible and lighter approach that was more relevant for firms in UEMOA countries and in the second phase for the UEMOA programme quick diagnostics are planned. There exists however no programme-level document yet that describes this more flexible and potentially multi-step diagnostic approach adapting and extending the Methodological Guide

(2003). The strategic diagnostics have been also criticised for not properly involving "coached" firms in the definition of themes subject to the diagnostics, in the diagnostics and in the implementation of upgrading activities, and related to this limited assessment of needs and expectations of firms. Evaluations found that assuring management ownership of beneficiary firms is a critical point of such interventions. A further challenge of the strategic diagnostic is the long time span until firms see first results (by participating in or initiating first support activities) as the diagnostic process as well as the decision making and approval process at the firm, IU office and SC level generally have taken quite some time. This has been addressed in newer documents by suggesting delivering support activities to beneficiary firms at an earlier stage and already during the diagnostics process.

- One the opposite side with regard to detail and duration, SPX-related firm level interventions, particularly profiling and matchmaking have been criticised of being not enough for local firms to be able to access value chains of large buyers in particular in the context of lesser developed countries. In this context SPX has been extended to include benchmarking and links to IU activities (see section 6.2.). The usefulness of the benchmarking service provided in the context of SPX programmes is however questionable. Only South Africa included benchmarking in its SPX activities up to now and firms did often not see the relevance of the benchmarking activity and have not used the results in a consistent way for improvements. However, it still has to be seen how useful the benchmarking is in other country contexts. But there are some issues related to the SPX benchmarking methodology. First, the SPX benchmarking relies quite strongly on a self-assessment by managers which is a good starting point to obtain information about supplier development needs but would need to be complemented by a more rigorous assessment to verify and identify further gaps. Second, benchmarking is a continuous improvement tool but in the intervention in South Africa it is designed as a one-time assessment without ensuring the continuous use of the instrument. Third, the methodology is a relatively light approach that can be used to identify certain general priority issues and as an eye opener that may motivate a more in-depth assessment in the context of a multi-step approach.

Firm-level IU interventions differ with regard to the extent to which they cover the actual implementation and funding of IU activities at the firm level. Classical IU programmes have at their core a decision making and funding mechanisms that approves and finances the implementation of firm-level activities with a focus on soft interventions. The exact share of the subsidy differs but generally for soft interventions (e.g. training, changes in production processes and management approaches) 70-80% of funds are covered by a subsidy allocated through upgrading funds but for hard interventions (e.g. equipment and technology upgrading) only 10-30%. Most other IU interventions include however no direct support for interventions and there is no link to finance (see section 6). In SPX programmes for instance there is not a sufficient link between the benchmarking of suppliers and access to supplier development assistance. It is not clear how successful the project in South Africa was in linking target firms to service providers and financial institutions and to initiating IU processes and activities which would be crucial for the effectiveness of the IU intervention.

Interventions at the firm level concentrate on soft interventions, mostly including some sort of firm-level assessment through BDS (e.g. diagnostics, benchmarking, upgrading plan), discussions with management, and training activities focusing on managers or workers, reorganisation of the production process, product development, marketing and promotion activities or certification. This is an important characteristic of UNIDO interventions and addresses some of the critique related to firm level interventions as funds required for soft interventions are generally much lower compared to the acquisition of new equipment. The focus on soft interventions also stresses the importance of changing the attitude of managers and workers and using available equipment in an efficient way. In some classical IU programmes such as in Algeria and Egypt, the actual upgrading interventions at the firm level focus on the preparation for and certification against ISO standards, and the implementation of HACCP. Quality related upgrading is however only a small part of IU raising the question for UNIDO how to better diversify and calibrate its upgrading support towards firm needs and systemic competitiveness.

With regard to delivery mechanism, most firm-level interventions are delivered by coupling international and national consultants that are trained during the process. This often involves a longer and more complicated process as solely relying on existing international and if available national consultants would deliver quicker results but it is crucial with regard to effectiveness and sustainability on a wider-

industry level. A challenge of an approach that relies heavily on consultants is the heterogeneous quality of TA depending on the capacity, experience and know-how of, the methods used by, and most importantly the ability to carry out a synthesis in keeping with the scale of the firm and its environment and to make proposals to stimulate change by the individual consultant. In the automotive supplier programme in South Africa for example, the quality of the services provided to component suppliers was heterogeneous. This can be explained partly by a lack of standardization of the assistance, which has depended highly on the capacity and methods used by each individual industrial advisor. Also in the SPX programme in South Africa, the quality of the benchmarking depends strongly on the SPX centre and the benchmarking expert.

There is no consistent approach to cost-sharing and different IU programmes use different mechanisms or even the same IU programme uses different mechanism in different countries (se for example in some UEMOA countries the cost sharing of regional and national components has been inconsistent). SPX programmes are generally provided for free, including the benchmarking services in South Africa. This might be a source of unfair competition for local service providers leading to market distortions as other providers offer benchmarking services for a fee. In classical IU programmes BDS such as the diagnostics and the upgrading plan are generally 100% subsidized. For implementation activities different subsidy schemes exist for soft and hard interventions with financing around 80% for soft and 20% for hard interventions. In automotive supplier programmes, participating firms contribute towards partial reimbursement of the counselling costs as in India and South Africa. Given the different project contexts, a flexible approach is required that takes into account the specific context of sectors and countries on the one side and the “ability to pay” of different types of firms (e.g. through differentiated fees) on the other side. But despite context specific adaptation, some form of co-financing of services by beneficiary firms is crucial – not only from a sustainability perspective but also to ensures value added and that the services address needs of the firms and are thus relevant.

6.2. Relevance, ownership and synergies

Relevance:

The relevance of UNIDO IU initiatives to developing countries is generally high. The main objectives of IU programmes - competitiveness and poverty reduction - have generally been in line with Government priorities aiming to promote industrial development and the competitiveness of local firms as a means to create employment and economic growth and to reduce poverty. These objectives are generally stated in Government documents, industrial strategies and sector policies. Also UNIDO's sector focus tend to be well aligned with Government strategies as specifically agro-food, textile and garment, leather and footwear and automotive related activities are highly relevant for the industrialisation process and provide local linkage, employment and export opportunities. Government policies often focus on export growth which is often also the case (at least implicit) in UNIDO IU interventions. Even though UNIDO's IU programmes have generally no explicit export focus with the exception of export consortia, there tends to be a focus on export markets, often also on high income country markets. Difficulties to compete with imports and to satisfy the growing national demand may be of high relevance for client countries but are often not given priority by UNIDO IU interventions. There is more scope for focusing on the local market and also regional and low or middle income exporting markets. This is in particular relevant as particular regional and the local market may have lower entry barriers and in certain cases provide more stable relationships and more IU potential. Also, there are important linkages between foreign and domestic markets. In the Ethiopia leather projects for instance, by developing its domestic market, the footwear and leather products industry could improve its profitability and, ultimately, its competitiveness on export markets. Other positive examples are SPX and automotive supplier development projects that also focus on internal market and local supplier and subcontracting potentials; some also work together with lathe local buyers (see for example the automotive supplier development project in South Africa).

A central question refers to the value added of UNIDO interventions in countries and sectors where a wide range of service providers and institutions exist already. This has been most obviously observed in the supplier development programmes in the automotive sector. In India and South Africa, services of a similar nature are available from private consulting firms, which questions the relevance of UNIDO activities and may lead to free riding on subsidised programmes.

Although, supplier development programmes generally target smaller firms at the second or third tier supplier level it has been difficult to reach these firms and most firms that participated have been larger, first and occasionally second tier firms. For first tier suppliers private sector services exist and the value added of UNIDO is questionable and interventions, particularly if they are for free, may create market distortions and crowed out existing service suppliers and programmes. An assessment of the selection channels that often work though business associations is necessary to identify why targeted firms are not reached and how they can be reached. A related question is if UNIDO should generally focus more on lesser developed countries. Given the funding context of UNIDO and its reliance on external funding, there may however be a trade-off between relevance and availability of funding in certain cases, particularly in the context of self-funded activities in developing countries that often only middle income countries can afford.

Country context:

Most IU programmes involve similar approaches, components and activities that are not always sufficiently tailored to the specific needs and priorities of countries and their industrial development levels and absorption capacities. This is related to the "blue print" approach in designing programmes where country specific contexts are not sufficiently taken into account despite identifying priority sectors or clusters for pilot interventions as in the case of the classical and the cluster IU programmes. This is most clearly seen with regard to "classical" IU programmes although there have been improvements. Classical IU programmes have been developed based on upgrading programmes in Southern European countries, particularly Portugal. They have then been transferred and adapted to North African countries with important involvement of UNIDO. These programmes are however less applicable to the context of SSA low income countries which are characterized by significant structural and developmental differences to which they have been subsequently transferred. These challenges were experienced in the IU programme in Senegal and even more severe in UEMOA (section 6.1). Classical IU programmes have been successful in countries with strong governments and institutional contexts such as in Tunisia and other North African countries. The heavy bureaucracy has however been challenging in lesser developed countries. A crucial question arises in this respect of how IU interventions can be designed and implemented in countries with weak institutions

and if in such contexts building up institutions is a necessary first step for broader IU interventions.

There have however been improvements. For example, under the national IU programme in Senegal, UNIDO introduced important innovations such as diagnostic studies of variable depth depending on the status of the beneficiary firm. In the UEMOA programme country studies were conducted leading to the identification of "priority products" or priority value chains. However, the evaluation of this programme found that the quality of the country studies was limited and the identification of "priority products" did not really have an influence on programme implementation. The designs for future national IU programmes that were developed under the regional UEMOA programme demonstrate a certain commitment to tailoring the approach to country needs. For the EU funded regional programme in Central Africa, which is currently being launched, the responsible EU Delegation has challenged the "blue print" approach of the classical IU projects and insisted that thorough and in-depth adaptations of the approach to the specific conditions of participating countries must be made, as a precondition to release the funding, which has already been earmarked.

An assessment of the existing service provider landscape and private and public support programmes is a requirement for any IU programme that is however not always done. This has been most obviously observed in the context of supplier development programmes in the automotive sector, for instance in India and South Africa. Such an assessment will not only make the intervention more relevant and effective but also open up possibilities for synergies with related interventions. Further, with regard to sustainability a main objective of IU interventions would be to support the development of a sustainable BDS market which will only be possible when there is an understanding of existing structures and the embedding of UNIDO projects in these structures as discussed above. In this respect it is crucial that no parallel structures are established next to existing local structures and existing national institutions are used and strengthened as far as possible to ensure capacity building and sustainability.

Limited cooperation and use of synergies:

There is often limited cooperation between different UNIDO IU programmes and hence there is potential to increase coordination and synergies of IU activities. Often projects do not use synergies or not even cooperate with regard to

information sharing although they share important common elements such as the same counterparts, same beneficiaries and similar IU objectives. Different projects sometimes work with the same sectors in the same country yet use different approaches and tools. For instance, in the automotive sector there is much scope for more cooperation between different UNIDO activities. In India there are two UNIDO programmes related to the automotive component sector but there was no indication of any substantial cooperation between these components. The UNIDO management is aware that the compartmental and "silo" mentality and individualistic approach to project management applied by UNIDO units and branches prevents the Organization from reaping the potential benefits of developing IU as an overarching concept and brand name. The need for a better coordination and integration of different IU initiatives has been emphasised internally (see UNIDO 2010, 2011) as can be also seen in the organisation of some joint workshops (e.g. cluster and M&E workshop in September 2011, upgrading workshop and automotive EGM in October 2011 and value chain expert meeting in September 2009).

6.3. Effectiveness, sustainability and impact

Effectiveness:

The effectiveness of different UNIDO IU interventions is difficult to evaluate and to compare due to limits in systematic M&E procedures and joint KPIs as well as the nature and dimensions of IU interventions. In the context of classical IU programmes, the development of "dash boards" and "integrated on-line programme management, monitoring and reporting tools" have been envisaged, but with limited success (see section 6.1). Currently information on effectiveness and impact focuses on outputs and on the micro level with much less information on impacts and results of IU interventions at the meso or macro levels. For instance, SPX performance has been measured by a set of performance parameters that include the number of matchmaking interventions in relation to requests for quotation (RFQ), followed by parameters of financial sustainability, the number and values of concluded contracts and the number of promotional events hosted by the SPX centre. Based on this information, the effectiveness and impact can often not be documented as there is no data to argue that outputs or even successful firm-level pilot interventions have translated into impact at the sector and country level.

Project and evaluation reports generally cover detailed information on outputs and also outcomes at the pilot micro-level and the training of local consultants naming the number of firms addressed and the services provided to them, the number of consultants trained, the number and types of documents prepared (e.g. manuals, list of consultants), and to a lesser extent also productivity results at the firm-level. Where information on productivity exists, the results of firm-level interventions are generally positive showing productivity improvements as can be seen in the evaluation results of "classical" IU, automotive supplier development and sector-specific IU programmes. However, there are also challenges with regard to effectiveness at the firm-level.

- In some cases, the qualitative performances of beneficiary firms have been monitored but there are no quantitative surveys in terms of sales, production, market share, value added, employment creation, profits, productivity, etc.
- In several IU programmes it has been difficult to reach the targeted number of firms. The reasons behind this difficulty are mixed and include on the one side scepticism of firms to open their books and work closely together with external actors and on the other side that interested firms are not reached or that target firms are not interested in the services given the availability of other providers.
- A challenge of most projects has been to secure the implementation of suggested improvements that go beyond training and counselling by facilitating access to finance. Even in classical IU programmes that include the establishment of upgrading funds, the implementation of these funds and getting access to the subsidy for firms has been often a complicated and lengthy process.
- A further challenge is that productivity improvements and other upgrading processes by themselves may not directly lead to more orders and business expansion. This stresses the importance of linking up with demand and buyers. This is explicitly done in certain IU programmes most explicitly in SPX programmes where the starting point is to link local firms with buyers which on the one side secures market relevance and on the other side the direct link to buyers and orders.
- There are many forces at the sector and country level that determine competitiveness, and they might counteract and annihilate results of IU

initiatives, including macroeconomic factors (e.g. unfavourable business environment and macro policies), country level and sector level determinants of competitiveness, trade policy, and international market conditions (e.g. the sudden emergence of extremely competitive producers in other countries) (UNIDO 2010).

- Despite generally positive results with regard to firm-level productivity improvements, it is questionable to what extent these firm-level results have led to industry-wide results reaching a larger number of firms. Firm-level interventions generally cover a small proportion of firms and the main objective of IU interventions is not to reach productivity improvements in those firms but to use these firms as pilots to initiative broader industry-wide results with impacts on the competitiveness of the whole sector or industry. Results in this respect have been generally less systematic and they have been often not the focus of monitoring activities.

The effectiveness of IU interventions at the institutional level (i.e. institutional capacity building) has been less systematic and more difficult to monitor. Interventions at this level generally involve changes in attitudes, behaviour and institutions that are long-term processes. Local institutions are often weak, particularly private sector institutions and institutional change takes time. To reach certain project outputs, e.g. number of diagnostics and upgrading plans, number of benchmarking assessments, etc. it may be often faster and less cumbersome to work with existing international or local experts without building up broader local expertise and institutional capacity. However, this more cumbersome and complicated way involving extending local capacities and institutions is crucial for the sustainability, ownership and eventually also effectiveness of IU interventions. Given the crucial importance of institutional capacity building for the replication and sustainability of IU interventions, KPIs and lessons learnt for different country contexts and institutional development levels would be particularly relevant which does not exist on a consistent basis. With regard to the policy level, impacts are also difficult to monitor but there are several positive results with regard to the development of national IU plans and the provision of funds for national programmes.

IU programmes can also produce unintended results that M&E however often do not capture. As the TE on CND states for the case of cluster projects (UNIDO 2010): “Among the possible unintended (including negative) results of CND projects are: crowding out non-beneficiaries, creating or raising inequalities and

disparities among local firms, favouring only the subset participating in the project (resulting in an elite group), and the lack of outreach and diffusion of these activities to other firms, networks, and regions." These risks also apply to IU programmes in particular as there is often no clear link and explicit strategy from the pilots to industry-wide replications.

Management structures:

With regard to classical IU programmes, there is a trade-off between broad and high-level but at the same time heavy and cumbersome governance and management structures. The SCs in classical IU programmes play an important role and ensures involvement of different actors, relevance and ownership but decision making in the SC is also cumbersome. The management structure in regional programmes is particularly complex give the need for multilevel governance structures with upgrading offices and SCs at national and regional levels. In the case of UEMOA, multi-level decision making tended to be slow, sometimes cumbersome. It will be crucial to revise the role of national and regional SCs and upgrading offices in the context of regional IU programmes which has been started by developing a template management structure for large scale programmes in the document "Proposal for the Large Scale Programmes Management and Coordination" in 2009 (UNIDO 2009). However, there is no evidence that this management structure has been implemented. It still has to be seen how effectively this is included in the design and implementation of new programmes and works in different country contexts.

There is also an inherent tendency of regional programmes towards "one-size-fits-all". The evaluation of the UEMOA programme found frictions between the regional IU programme and national IU programmes and concluded that there is a need for a better definition of the regional dimensions of IU as opposed to the national dimension. Regional programmes conducting national level interventions raise the issue of the so called "subsidiarity principle" (UNIDO 2013). It suggests that a supra-national authority should stick to its "subsidiary function" and perform only those tasks which cannot be performed effectively at a national or local level. Three categories of interventions can be distinguished that should be dealt with at the supra-national level: (i) interventions that have to be addressed at the regional level because national governments delegated their legislative or regulative power to the respective regional body (e.g. UEMOA Commissions); (ii) interventions for which the Commissions do not have legislative power but rather play a harmonization role; (iii) interventions which are conveniently addressed at

the regional level in order to assist national governments with delivering their own legislative and administrative duties. In principle, all interventions that do not come under one of the three categories should be dealt with at national or local level.

Impact on development objectives/poverty reduction:

Although most IU initiatives stress economic growth, employment creation and particularly poverty reduction as their main objectives, there is generally no explicit focus on these development objectives in UNIDO's IU interventions - neither in the design and the intervention logic nor in the implementation of programmes. If development objectives are integrated this is largely based on the explicit interest and demand of the host country and/or the donor but is not generally based on UNIDO's initiative and efforts. Monitoring does also generally not explicitly focus on the effects on development objectives and particularly poverty reduction. As the poverty impact is not consistently monitored, there is limited data and knowledge. Poverty impacts have also not been integrated in a systematic way in UNIDO's IU projects and support documents such as lessons learnt and manuals on how to extend the development impact of IU interventions. In interventions, it is generally assumed that increased competitiveness of firms automatically leads to economic growth and employment creation and through this eventually to poverty reduction. However, this does not always have to be the case as shown in the following paragraphs that give an overview of the development impact of UNIDO's IU interventions, partly based on the desk review on poverty reduction (UNIDO 2010b), and develop a results chain which illustrates the channels through which IU interventions can impact on development objectives.

Interactions between firm-level competitiveness, industrial development/economic growth, employment generation and poverty reduction are complex and involve short term and long term effects that may be contradictory. An assessment of the poverty impact requires therefore assessing short and long term effects and impacts. For instance, even though an intervention may lead to declines in employment in the short run due to productivity improvements at the firm level or consolidation processes at the industry level these may be necessary developments as without industrial restructuring the whole sector and thus much more employment may have been lost in the medium term.

Competitiveness which is the main direct objective of most IU interventions is an important condition for poverty reduction but it does often not directly contribute

to poverty reduction. There is a large literature on the link between economic growth and poverty reduction and there is a relatively broad consensus that growth is necessary but not sufficient for poverty reduction and that the pattern of growth matters. Economic growth and particularly industrial development have structural effects that have complex implications on employment and poverty and are the basis for sustainable economic development. Pro-poor growth is defined as a pace and pattern of growth that enhances the ability of poor women and man to participate in, contribute to and benefit from growth (UNIDO 2010). The most important link between growth and poverty reduction is employment generation and thus income although other links are also relevant such as growth leading to a broader social welfare system that brings people out of poverty by providing social infrastructure or transfers. Employment effects of IU programmes can be direct involving the firms that participate in pilot interventions but more important are indirect effects through linkages between participating firms and other local firms and eventually through the replication of pilot level interventions on a broader scale as well as induced employment effect through feedback effects of increased growth on local purchasing power.

The impact chain of IU interventions assumes generally that IU interventions improve the competitiveness of firms which then leads to business expansion which creates additional employment and leads to poverty reduction. This chain is however based on several assumptions which may not be fulfilled. Figure 3 shows this causal links that are explained in the following.

- The IU intervention in itself may lead to reduced employment, particularly if it is focused on process upgrading and thus on productivity improvements that may substitute workers for capital or increase the output per worker through more efficient production processes or technologies. Functional upgrading may involve the switch to higher value added activities that may be also more capital intensive and thus require less workers. Hence, there may be trade-offs between private sector sustainability and growth on the one side and poverty reduction on the other side. All types of upgrading (process, product and functional) may also require different types of skills and hence may change the skill content of employment and through this impact on poverty as the poor may have less access to higher skill employment (see section 3 and table 2)

- Given that IU leads to improved firm-level competitiveness, this may lead to expanding business but this does not have to be the case; higher competitiveness can also just ensure the maintenance of business or without any additional activities to ensure access to markets higher competitiveness may not lead directly to more orders. The link between improved competitiveness and business expansion can be supported by market access and partnership programmes that focus on linking local firms with buyers. To extend the impact on local employment, linkages to local suppliers and/or subcontractors are important which can be facilitated through local network development programmes. In AGR, backward linkages to agricultural production are typically not sufficiently considered in the design of IU projects (UNIDO 2010).
- IU interventions may however also lead to the crowding out of less competitive firms, particularly smaller firms. IU and particularly production for export markets may crowd out local suppliers and/or subcontractors as they may not fulfil the necessary standards for export markets and as foreign buyers may nominate certain foreign input suppliers with whom they have had long-term relationships. This may trigger reductions in business and employment particularly for smaller firms and also increases in poverty. Local supplier development and linkage programmes have an important role to increase standards and productivity of local suppliers and subcontractors, as well as social protection programmes to counteract employment and poverty impacts that may go along with IU interventions.
- The link between business expansion and employment creation is also questionable as, depending on the production processes and technologies, more orders may not require additional employment – at least not in a proportional way. This largely depends on the technological and process requirements and there is not really an intervention possible with respect to changing the employment content of technologies. There has been a debate on appropriate technologies but given globalized production and high competition technology and production processes can not be primarily chosen with respect to their employment effect.
- Employment expansion ensures that IU leads to an expansion path but it is not secured that this is a pro-poor expansion path. This depends on which type of employment is created. If employment expansion is based on low

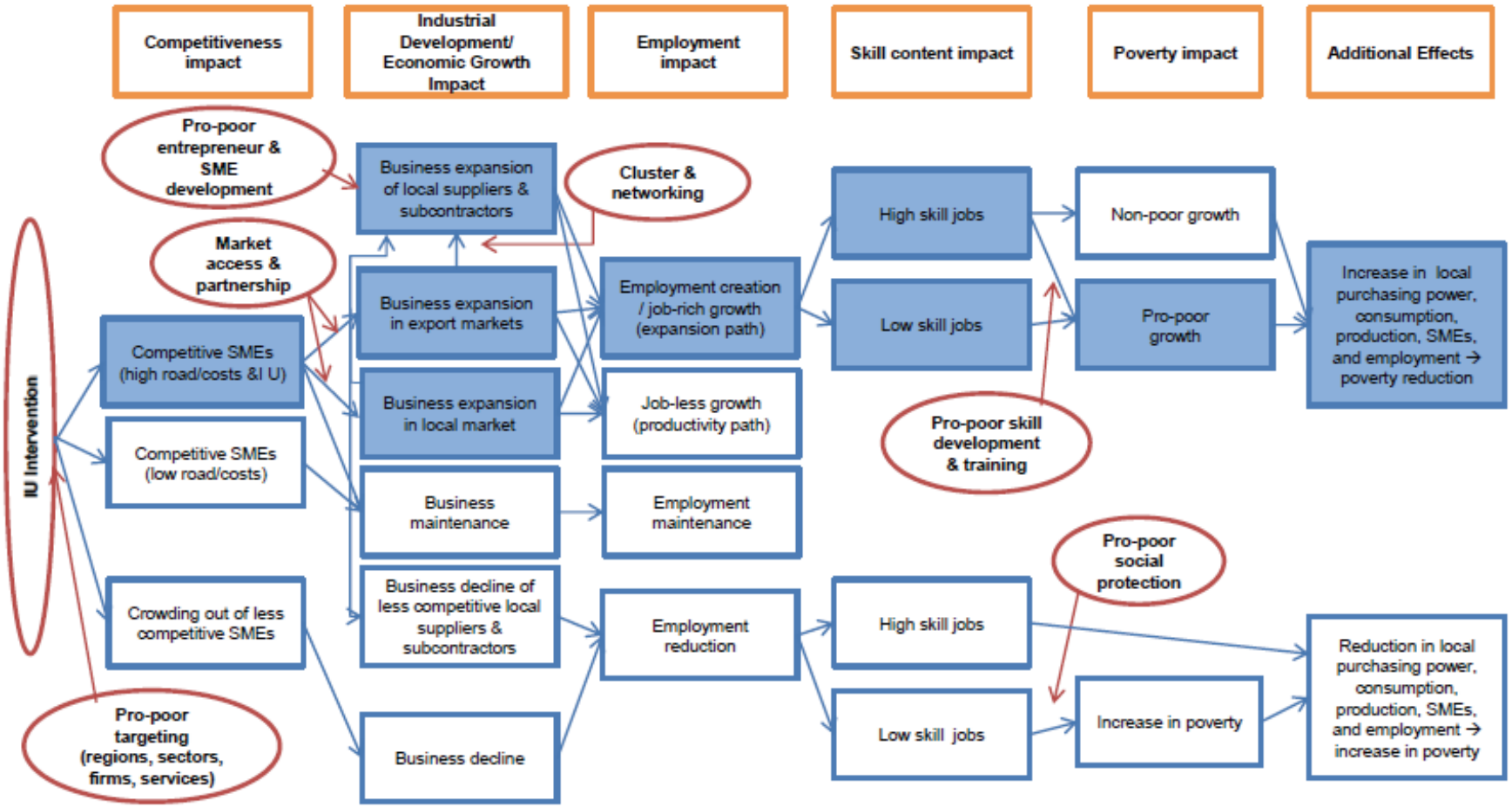
skill workers poorer groups of the population are probably directly benefiting. If employment expansion is based on higher skilled jobs, the access of poorer parts of the population depends on their access to skill development and training programmes. There may be employment generation in the private sector yet the poor may be unable to take advantage due to low levels of education, poor health conditions or discrimination.

- Growth - whether it is pro-poor or not - has additional effects through its impact on local purchasing power leading to increases local consumption, production and also employment and thus may trigger poverty reduction. However, this is only the case if the additional income is spent for local products. In a context of liberalised markets this link is less straightforward as consumption may involve imports. Another indirect channel through which economic growth may impact on poverty reduction is through its impact on taxes and thus on public revenues and expenditures.

Based on the above discussion, there are key intervention points that could be used to ensure and strengthen the pro-poor impact of IU interventions. Integrating the poverty impact may however not always be possible and useful in the same intervention but may require a complementary intervention. For instance, a focus on first tier suppliers in the automotive component sector that may lead to consolidation may not be avoidable to remain competitive at this level in the medium term but this intervention may be complemented by interventions at the second and third tier supplier level to increase local sourcing and employment at this level. The IU activity would however in this case need to be linked to the complementary interventions to ensure that development objectives are addressed in a systematic way. Further, the poverty impact of IU interventions may not necessarily be higher if the poor are directly approached; the indirect effect of reaching indirectly workers or suppliers may be large or even larger in certain cases.

With regard to development objectives, the focus is not only be on employment creation and hence the quantity of employment but also on other dimensions such as the qualitative dimension of employment (social upgrading) and gender mainstreaming that are both underdeveloped issues in UNIDO's IU programmes. IU can lead to social upgrading but this is not automatically the case and sometimes IU can even trigger social downgrading (section 3). In this regard there

is potential to link IU projects more consistently with corporate social responsibility (CSR) initiatives which is to date not done. Further, IU interventions generally do not integrate a gender dimension or at least collect sex-disaggregated data which could be easily integrated in programme documents and M&E procedures. As with most economic policies, IU-related policies and interventions have gender-differentiated effects, because women and men typically work in different sectors and jobs, have differential access to resources and basic services, and play different roles in households, communities and the economy. Therefore, men and women may be differently affected by IU and industrial development and restructuring more broadly and associated adjustment costs, and may not be in an equal position to take advantage of new opportunities. Existing gender dynamics and inequalities may limit women's opportunities but also sectors' and countries' IU prospects more generally (Staritz 2013).


Competitiveness impact
Industrial Development/ Economic Growth Impact
Employment impact
Skill content impact
Poverty impact
Additional Effects
IU Intervention
Pro-poor entrepreneur & SME development
Market access & partnership
Competitive SMEs (high road/costs &I U)
Competitive SMEs (low road/costs)
Crowding out of less competitive SMEs
Pro-poor targeting (regions, sectors, firms, services)
Business expansion of local suppliers & subcontractors
Cluster & networking
Business expansion in export markets
Business expansion in local market
Business maintenance
Business decline of less competitive local suppliers & subcontractors
Business decline
Employment creation / job-rich growth (expansion path)
Job-less growth (productivity path)
Employment maintenance
Employment reduction
High skill jobs
Low skill jobs
Pro-poor skill development & training
High skill jobs
Low skill jobs
Non-poor growth
Pro-poor growth
Pro-poor social protection
Increase in poverty
Increase in local purchasing power, consumption, production, SMEs, and employment → poverty reduction
Reduction in local purchasing power, consumption, production, SMEs, and employment → increase in poverty

7. Systems Dynamics Modelling Approach[7]

In this section the potential of SD modelling in the context of evaluations is explored. UNIDO IU (as well as other) interventions involve high complexity in terms of the context of interventions and interventions themselves. Models help to cope with complexity as they are simplified frameworks to illustrate complex processes but they have the danger to be too simplistic to be useful for real world interventions. The most common evaluation approach is the use of intervention logics/logical frames and causal chains that logically assess the relationships between interventions, outputs, outcomes and impacts including the assumptions that have to be fulfilled for such relations. Not denying the usefulness of this approach, the complexity of the field is often insufficiently tackled by such causal chains/result chains. On the other side traditional economic models focus largely on aggregate macro dynamics and are too restrictive in their assumptions and restrictions as well as in their data requirements to be suitable for the modelling of typical IU projects. Under this TE we are therefore exploring the potential of SD modelling as a flexible intermediate approach to modelling between log frames and economic (macro) models, which would allow identifying the impact channels, impact drivers and feedback loops that UNIDO attempts to activate with its IU interventions.

The main objective of this exercise is twofold: first, to better explain the conditions and multiple causalities of IU projects and to create a better understanding of the complex systems UNIDO operates in, and, second, to learn about the response of these systems to UNIDO policies and to better disseminate lessons learned from IU evaluations. Important to reach these objectives is that the SD modelling exercise focuses on results (outcomes and impacts), puts interventions in context based on transparent assumptions, models the "catalytic" role of interventions as this is critical for most UNIDO IU initiatives, allows for the integration of evaluation findings, and is participative and useful for consensus building between evaluators and project managers and as a learning tool.

[7] The SD model has been developed by Sebastian Derwisch (University of Bergen) jointly with Peter Loewe and Cornelia Staritz.

7.1. What is Systems Dynamics?

The first applications of SD modelling were in the fields of engineering (e.g. technological feed-back systems) and biology (e.g. ecological systems). In 1961 Forrester from the MIT Sloan School of Management applied SD in the field of management to understand "industrial dynamics". In 1972 SD became famous in Forrester's and Meadows's "world model" in the influential "Limits of Growth" publication of the Club of Rome. In 2005 it was used by the Millennium Institute in their "Threshold 21" simulations. Recent applications are diverse including management, traffic, city and regional planning, energy and environment, and to a lesser extent economic development. SD modelling had a breakthrough due to developments in computers that allowed the handling of systems with thousands of equations. Today, there are several software packages on the market, including VENSIM that is used in our exercise below.

SD is an approach to understanding the behaviour of complex systems. Main characteristics are the use of internal feedback loops, time delays and stocks and flows. Hence, causal loops and circular causality are stressed instead of causal (one way) chains by building systems from interfering loops including stocks, flows and variable time lags. These features show how even seemingly simple systems display complexity and nonlinearity. The key intellectual features of SD are therefore: first, shifting from linear causal analysis to feedback loops, and, second, explaining non-linear effects. The second is often described as the butterfly effect meaning that a little cause can have huge effects. This makes this modelling approach particularly suitable for UNIDO IU interventions which are generally small and work on a "pilot" basis with the objective to be "catalytic" and so causing larger impact.

These characteristics make the SD approach more flexible than other modelling approaches, including macro- and micro-based economic models, and allow including micro and macro behaviour and restrictions and information based on quantitative data as well as qualitative expertise. This flexibility comes however also with the risk of developing behaviours and relations that do not make sense. It is further, like all models, based on assumptions that are however made explicit and transparent in the SD approach which is an advantage to other modelling approached.

In developing a SD model first the system boundaries, i.e. what is internal and what external top the system, have to be determined. The challenge is to be not

too simple but also not too broad and complex. In a second step a set of internal and external variables and a set of logical and/or quantitative relations between them have to be identified to determine the structure of the model. In a third step the parameters and elasticity of the relationships have to be set.

The use of SD involves two related processes: first, a "qualitative modelling" process in the context of a participative "Group Model Building" workshop to identify the main variables, drivers and their relations in the analyzed system as well as assumptions about their behaviour; and, second, a "quantitative modelling" process where certain scenarios, responses and outcomes are simulated. The first process can be in itself a useful tool, in particular for consensus building and learning.

7.2. Testing model on "Industrial Upgrading"

In the context of this TE, we developed (jointly with Sebastian Derwisch from the University of Bergen) a small testing SD model for a generic IU case based on the footwear sector in Ethiopia. The decision for this case was practical as the evaluation of leather and footwear projects in Ethiopia is part of this TE and was in parallel evaluated in a project evaluation. In (evaluation) practice, SD modelling goes through a sequence of steps:

1. Bring together project staff and evaluators for a workshop to elicit knowledge and build consensus on the variables, drivers and relations in the system ("Group Building Workshop")
2. Design a graphic model based on the workshop discussions incorporating evaluation lessons
3. Refine the model through dialogue with the group
4. Program the model on a PC for example using VENSIM
5. Test the computer model for plausible behaviour in different scenarios
6. Use the model as a learning tool to convey evaluation lessons

Using experience from different evaluations, we have gone through developing a small testing model for IU from step 1 to step 5 and organized a small workshop in September 2012 to present the model and collect views from participants from different UNIDO branches.[8]

Structure of the model

[8] Participants of this workshop are included in Annex C.

A specific case was chosen for the development of the model to be able to limit the variables included in the model as simulation models should depict the variables relevant to a problem in a system, not the entire system. The model represents the leather industry with a country focus on Ethiopia.
Main variables included are the following:

- Resources: Labour, skills and equipment are included as aggregated resources in the model. Labour is determined by the labour intensity of the equipment. It is assumed that higher relative investments in equipment compared to skills lead to increased automation and reduced labour intensity.
- Price and costs: An initial price and initial costs are assumed. Costs are split into fixed and variable costs. So far this has no impact in the model behaviour but can be used in further versions to show the effect of equipment- or employment-related policies. Costs are further influenced by production capacity - if there is overcapacity, costs per item increase. Price is influenced by costs through a sensitivity that determines to what extent costs are passed on to the price.
- Profitability: Based on costs and price the profitability is calculated which determines the desired investment together with demand. Thus, we include the effect that investors can invest their profits in other assets (e.g. financial markets, real estate) if the profitability of the leather industry is too low.
- Demand: Demand is determined by the attractivity of the product which is the sum of the product of price (times its weight) and the quality (times its weight). Quality is the sum of the product of skills of the labour force (times its weight) and equipment (times its weight).
- Production: Production is determined by production capacity and capacity utilization. Capacity utilization is calculated by a ratio between the available capacity and the desired capacity, which is based on demand. Production capacity is a product of equipment and its productivity which is determined by skills of the labour workforce.

Scenario building and testing

The model includes three external factors to build different scenarios, seven input variables to respond (different types of IU interventions), and eleven output variables (effects) (Figure 4).

The three different scenarios involve:

- Costs of raw materials: Represents an increase in raw material costs. The parameter can be varied between 0 (no increase in the raw material costs) and 5 (raw material costs are 500% higher).
- Imports and import tariffs: Represents an increase in competition on the national market. The parameter can be varied between 0 (no competition, everything produced for the domestic market can be sold) and 1 (full competition, nothing produced for the domestic market can be sold).
- Increased competition on export markets: Represents an increase in competition on the international market. The parameter can be varied between 0 (no competition, everything produced for the export market can be sold) and 1 (full competition, nothing produced for the export market can be sold).

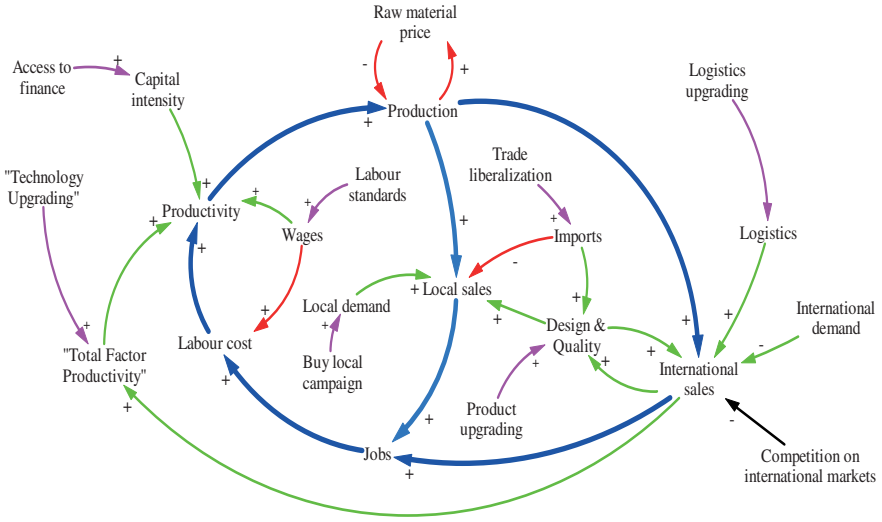
The seven inputs variables/interventions involve:

- Equipment upgrading programme: This intervention increases investment in equipment while it maintains workers/labour. The parameter can be varied between 0 (no additional investment in equipment) and 5 (investment in equipment increased by 500%). Together with this intervention the labour intensity can be varied as it is assumed that different types of equipment investments have different effects on the quantity of labour, either requiring the same share of labour or being labour saving.
- Skills upgrading programme: This interventions increases labour productivity by investments in skill building. The parameter can be varied between 0 (no additional investment in skills) and 5 (investment in skills increased by 500%).
- Access to credit: Access to credit lifts the overall investment by the value inserted. The parameter can be varied between 0 (no additional investment) and 5 (investment increased by 500%).
- NQS upgrading program: NQS upgrading represents investment in NQS facilities. The parameter can be varied between 0 (no additional investment into NQS upgrading) and 5 (investment into NQS upgrading increased by 500%). Increasing this parameter causes costs as investment in NQS upgrading is coupled with firms starting to certify their products. Hence, when only NQS upgrading is increased there will be an increase in costs by certification, which will in this specific scenario not be matched with an increase in demand. Only as the quality threshold for entering the

international market is reached through an increase in equipment and skills required to lift the attractiveness of the production to international standards, international demand increases.

- Logistics and customs upgrading program: This represents investments to improve logistics, which reduces fluctuations in the delivery delay. The parameter can be varied between 0 (no additional investment into logistics) and 5 (investment into logistics increased by 500%).
- Buy local campaign: This represents a campaign that stimulates local demand. The parameter can be varied between 0 (additional increase in demand) and 5 (local demand increased by 500%).
- Promotion of labour standards: Represents an upgrading of wages. Higher wages have an effect on labour costs and skills per worker/productivity through process improvements or increased motivation. It is assumed that wages have an impact on unit labour costs and productivity, as well as on the labour intensity that is chosen. However, in many industries, there are certain best-practice or globally competitive production processes and methods that require a certain mix of capital, labour and skills that can only be chosen to some extent. Hence, there may be not that much flexibility for the firm or the industry to change labour intensity.

Figure 4: Testing IU model plus interventions



This model can be used to simulate external shocks f.e. in the form of trade liberalization represented by import tariff reductions, an increase in imports and, hence, an increase in competition on the national market, as well as the effects of interventions. Regarding interventions, the simulation simulates a time step (1 year), observes changes in the target variables, and adjusts interventions. Interventions can be varied in length, intensity and in the combination they are applied. Trade-offs between different interventions can be depicted by assigning a certain "budget" or number of points that can be allocated for different interventions. One point would correspond e.g. to the application of a logistics and customs upgrading program for one year. By limiting the number of points available, the user is forced to select options in which the limited number of points is used most effective.

Lessons learned

There are still open issues regarding this simple SD model in particular regarding the production function and the determination of productivity and the lack of a detailed demand structure and of the explicit inclusion of poverty impacts. Further, time lags, causality strengths, and thresholds and complementarities between interventions have to be modelled more explicitly. But based on this SD modelling exercise, it can still be concluded that it might be useful to develop generic SD models for main types of UNIDO IU initiatives. These generic models

can be the basis for calibrating the model to specific cases/projects with the objective to reach a common understanding on variables, drivers, relationships and assumptions as well as priorities, ideally in the design phase of projects. It can however also be used to show evaluation results and incorporate evaluation "lessons learned" to enhance communication between evaluators and project managers. Additionally, such an IU model can show the different approaches to IU that are used in different units and IU initiatives giving an overview of the whole UNIDO IU portfolio and where the different approaches are located and how they are related. This also furthers a systemic approach to competitiveness stressing the interrelations and complementarities of different types and levels of interventions. Importantly, the model can also be solely used in a qualitative context as a discussion, consensus building and learning tool and does not require quantitative simulation, which may be in many contexts difficult due to data constraints. The focus of this more qualitative use would be on showing the complexity of projects and their contexts and bringing actors together to agree on interventions and priorities in the project design and/or evaluation phase.

8. Conclusions

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a. *UNIDO has successfully implemented "classical" IU interventions in developing countries*

UNIDO has been a forerunner for "classical" industrial upgrading (IU) interventions. Typically, these interventions combine subsidized support for pilot firms with meso-level capacity development of BDS consultants and technical centres or other industry-specific institutions. Initially, "classical" IU has been a European concept that was applied for EU accession countries but, since the mid 1990s, UNIDO has re-designed the approach for developing countries. Since then, UNIDO has implemented more than 10 projects of this type, particularly in North and West Africa.

The demand for such projects, from middle-income but increasingly also from low-income countries, has been continuously increasing. In the current context of increasing donor interest in industrial development and the EPA negotiations, new opportunities arise for UNIDO to expand its IU portfolio into new geographical areas.

b. *Certain shortcomings of the "classical" IU approach have become apparent*

Despite the broad implementation of UNIDO's "classical" IU initiatives, there is room for improvement. Certain challenges have been identified, not only internally but also externally. The EU – an important donor of UNIDO IU projects – has scrutinized regional IU programmes in the context of the EPA negotiations. But also internally, discussions have been going on since 2008 on how the classical IU approach could be further developed. Certain shortcomings of the traditional IU approach have become apparent in the following areas:

- Practical application of the holistic IU approach *(see conclusion d);*
- Tailoring the IU approach to variable country conditions *(see conclusion g);*
- Ensuring flexible interventions and ownership at the firm level *(see conclusion l);*
- Access to finance *(see conclusion m).*

c. Combining "classical" IU with other UNIDO interventions

The present Thematic Evaluation (TE) stresses that the UNIDO portfolio includes other types of interventions that are complementary to "classical" IU and can contribute to a more comprehensive and holistic approach to IU. In addition to classical IU programmes, which are the most in-depth approach to IU, the TE found that value chain-based programmes and cluster-based programmes are closely related to IU (see Table 3). These types of interventions are more diverse in their approaches and tools but share important similarities and offer complementarities to the classical IU approach.

This comprehensive understanding of IU should however not lead to the dilemma of overstretching the IU concept and classifying everything UNIDO does as IU. But, in line with the TORs, this TE argues that the identified approaches' and projects' similarity in objectives and complementarity in tools can be the basis for synergies and learning *(see conclusion f).*

d. Putting the holistic approach to IU into practice

In 2003 UNIDO published a comprehensive Methodological Guide to IU, which stressed the need for a holistic approach to IU combining micro, meso and macro level interventions (the latter largely understood as developing a national IU strategy).

In many cases, funding problems made the practical application of the holistic approach to IU difficult. Even though projects may have been designed in a systemic way often in the form of IPs or CSFs, implementation became patchy due to limited funding and donors picking certain activities that were aligned to their interests. As a result, many UNIDO IU projects focused on micro level interventions and the use of BDS consultants, while the attention given to institutional capacity building, access to finance and policy formulation has been rather low.

e. Critical linkage between IU and SMTQ development

In the UNIDO Integrated Programmes in Tunisia, Algeria and Egypt, specific attention had been given to the linkage between upgrading of firms and upgrading of SMTQ institutions. This linkage has become less obvious in the more recent regional programmes in West Africa, where IU and SMTQ are being dealt with under separate programmes. Coordination issues between the two programmes

have been apparent and a concern. More recently, the national programmes in Cameroon and the regional programme in Central Africa have again tried to overcome this separation between IU and development of SMTQ institutions by putting both components under the roof of one overarching programme *(see conclusion q)*.

f. Using synergies between different types of IU approaches and interventions

In addition to "classical" IU, the UNIDO portfolio includes other approaches and methodologies that are potentially relevant to IU. Using cross-organisational expertise at UNIDO, in particular linking more explicitly technical and engineering in house sector expertise in particular in AGR to the more generic approaches of other branches has only taken place to a limited extent (with the leather related projects in Ethiopia being a positive example in this regard). The UNIDO management is aware that the compartmental or "silo" mentality and the individualistic approach to project management applied by UNIDO units and branches prevents the Organization from reaping the potential benefits of developing IU as an overarching concept and brand name and achieving additional developmental effects.

The need for a better coordination and integration of different IU initiatives has been emphasised internally (see UNIDO 2010, 2011) and led to the organisation of some joint workshops (e.g. cluster and M&E workshop in September 2011 and upgrading workshop and automotive EGM in October 2011).

Of particular importance has been the "Initiative for Upgrading and Enterprise Competitiveness" (IUEC) of 2010/11 that made an attempt to revisit UNIDO's IU approach. The IUEC advocates a *"comprehensive and holistic approach at policy, institutional and enterprise levels"* and the *"development of a comprehensive and integrated approach based on a composite package of UNIDO tools and programmes covering the full range of technical services that form the IU Initiative"* (UNIDO 2010, 2011).

These initiatives are promising. Recent (not yet evaluated) IU projects seem to have successfully combined "classical" IU with SPX (case of Cameroon), with export consortia (case of Côte d'Ivoire) and with cleaner production (case of Senegal). However, the TE found no evidence that the "comprehensive and holistic approach" advocated under the IUEC has been consistently applied for the formulation of new IU initiatives. A case in point is the planned "deployment

phase" of the UEMOA programme, whose design is not fully in line with the implementation modalities of the IUEC.

g. Tailoring IU to variable country conditions

Transferring the IU approach from Europe to North Africa and from there to Sub-Saharan Africa (SSA) has been a challenging experience and UNIDO's efforts to making the necessary adaptations and innovations are widely recognized. For example, under the national IU programme in Senegal, UNIDO introduced important innovations such as diagnostic studies of variable depth depending on the status of the beneficiary firm. However, this innovation was not applied under the UEMOA programme. Understanding countries' development levels and institutional and sectoral contexts as well as policy priorities is crucial for the design of projects and as a basis of decisions on sector selection, firm selection and which institutions to work with and support.

Countries in SSA are characterized by significant structural and developmental differences. Tailoring the IU approach to variable country conditions has, therefore, become a specific challenge under the ongoing and forthcoming regional IU programmes in SSA *(see conclusion h)*. The UEMOA programme for example tried to address this challenge by conducting country studies leading to the identification of "priority products" or priority value chains. However, the evaluation of this programme found that the country studies were rather shallow and that the identified "priority products" were not used for focusing programme implementation.

On the other hand, the designs for future national IU programmes that were developed under the regional UEMOA programme demonstrate a certain commitment to tailoring the approach to country needs.

For the EU funded regional programme in Central Africa, which is currently being launched, the responsible EU Delegation has challenged the "blue print" approach of the classical IU projects and insisted that thorough and in-depth adaptations of the approach to the specific conditions of each participating country must be made, as a precondition to release the funding, which has been earmarked.

h. Specific challenges of regional IU programmes

UNIDO has accumulated considerable experience with regional IU programmes and there is a growing demand for such programmes. A specific challenge of regional programmes is the need for multilevel governance structures with

upgrading offices and steering committees at both national and regional levels. Multi-level decision making tends to be slow and sometimes cumbersome. Being aware of the specific challenges of regional programmes, UNIDO management has initiated the development of a template management structure for large scale programmes (UNIDO 2009). However, there is no evidence that this has been implemented.

There is an inherent tendency of regional programmes towards "one-size-fits-all". The evaluation of the UEMOA programme found frictions between the *regional* IU programme and the *national* IU programmes and concluded that there is a need for a better definition of the regional dimensions of IU as opposed to the national dimension. There is evidence that firm-level interventions should not be managed at the regional level and that the "subsidiarity principle" should be applied more thoroughly.

i. No overarching analytical framework for IU

UNIDO does not have a standardized approach for detailed economic assessments of the industrial fabric of a given country and its competitive advantages but also for institutional mapping of its existing private and public support organizations and programmes. Such an assessment framework could be the basis of Government decisions to configure and design IU interventions for specific national contexts, policy priorities and constraints and to select priority sectors and "pilot firms" *(see conclusion n).* It could also facilitate the identification and tracing of "impact channels" towards high-level developmental impact, such as employment creation and poverty reduction *(see conclusion s).*

UNIDO research tools for country-level competitiveness analysis are potentially relevant but not strategically linked to TC. One attempt to address this linkage problem has been the "National Industrial Modernization and Export Development Program" in Palestine for which the UNIDO "competitiveness analysis" tool had been used at the design stage. Unfortunately, this programme was never implemented because of funding problems. The leather programme in Ethiopia has been another valuable attempt to link IU with economic analysis at country and sectoral level.

j. No systematic use of cluster and particularly value chain approach

A systemic approach with regard to firm-level as well as capacity building and policy level interventions can be strengthened by using more explicitly a cluster and particularly a value chain perspective in the analytical framework for IU as

well as in interventions. The cluster perspective stresses inter-firm linkages and linkages between firms, service providers and institutions as crucial for competitiveness, and the importance of joint efficiency and joint actions to overcome challenges particularly for smaller firms in developing countries. In this sense, the cluster approach is relevant for a systemic approach as it focuses on a dimension of competitiveness and IU often overlooked by approaches that focus on firm-level interventions but also as a mode of implementation that ensures cost-effectiveness and learning and synergies between firms.

By focusing on the local level and local linkages, cluster based approaches however tend to miss the global perspective (see section 3). Here the value chain approach comes in and can be effectively combined with a cluster perspective. The value chain perspective helps to understand overall trends of industrial (re-)organization, market potential, and systemic competitiveness that not only depends on the individual firm but the groups of firms and institutions that are linked in value chains with a particular important role played by lead firms that govern these chains. It helps therefore in identifying priorities and leverage points for policy and TC interventions and is increasingly used by international institutions and donors, including UNIDO, to better target their support in various areas. In particular AGR uses a systemic value chain approach in their sector-level IU interventions (UNIDO 2010, 2011); in other IU interventions, in particular "classical" IU projects, a value chain approach is not consistently used.

k. Focus on export promotion and neglect of internal markets

In Europe, "classical" IU programmes were introduced as a means to strengthen the local industry's resilience against the "accession shock". In contrast, many IU projects of UNIDO tend to focus on export markets without taking advantage of the opportunities in local and regional markets and buyers that may be more easily accessed and sometimes provide more stable relationships. Difficulties to compete with imports and to satisfy the growing national demand are often challenging for partner countries but these aspects are often not given priority by UNIDO IU interventions.

The leather programme in Ethiopia provides evidence that exporting firms can take advantage from a strong position on the local market and vice versa. Other positive examples in this regard are SPX and automotive supplier development projects that also focus on internal market and local supplier and subcontracting potentials; some also work together with local buyers and are linked to industrial policy strategies in terms of increasing local sourcing (see for example the SPX

project in South Africa). In this regard, public procurement and also local content policies could be systematically linked to IU interventions.

l. Ensuring flexible interventions and ownership at firm level

Firm-level interventions are at the heart of IU projects. Evaluations found that assuring ownership of management of beneficiary firms is a critical point of such interventions. Managers need to be properly involved in the identification of upgrading themes, in the diagnostics and in the implementation of "soft" upgrading activities.

Shortcomings of applying a "one-size-fits-all" methodology for the diagnostics have been a major finding of the evaluations of earlier IU projects. Since then, UNIDO has managed to improve the flexibility of its firm-level interventions by complementing the in-depth strategic diagnostic tool of the classical IU projects by lighter types of interventions, such as quick scans as well as using the SPX approach and its newly developed benchmarking tools *(see conclusion g)*. However, UNIDO has not yet systematically assessed these different tools in their respective contexts of application and drawn lessons from these projects.

Consistent and predictable cost sharing policies are another essential element of firm ownership. There are, however, certain weaknesses and inconsistencies in this regard. In some UEMOA countries the cost sharing policies of national and regional IU programmes have been inconsistent.

m. Difficulties to ensure access to finance

In the IU Methodological Guide, access to finance has been recognized as a key success factor of IU programmes. Some projects facilitated linkages with banks and other financial institutions, most successfully the IU project in Senegal. But many evaluations found that this dimension of IU remained largely theoretical.

In practice, the access to finance issue has been dealt with primarily as a matter of distributing subsidies to beneficiary firms to encourage their IU investments. "Upgrading funds" are a standard tool of "classical" IU but implementing such funds and making them work in an effective, efficient and sustainable manner has been challenging.

Eventually, installing "water tight" subsidy distribution mechanisms became a main concern in many classical IU programmes, which explains their focus on setting up "upgrading offices" and Steering Committees (SC) that administer the delivery of subsidies to the selected firms. Representatives of the financial sector

were included in some SCs but with limited actual involvement (see for example the IU programme in UEMOA).

An interesting attempt for a more broad based approach has been made under the UEMOA programme, which conducted studies in all participating countries about the existing financial support schemes and how linkages with these schemes could be established. However, the findings of these studies were not practically implemented. Moreover, the more general challenges of subsidy schemes, such as potential market distortions, crowding out and unproductive investments were also not addressed in these studies.

n. Unclear rationale for firm-level interventions

Despite the widespread scepticism about firm level interventions within the development and donors community, UNIDO has been successful at positioning such interventions at the core of its IU interventions. However, micro-level interventions need to be based on a systemic understanding of competitiveness that places firms in the context of value chains and their business environment, including other firms, such as suppliers and buyers and support institutions.

The inherent limitations of firm-level interventions need to be recognized in order to avoid just "lifting up" some randomly selected individual firms, which is of course insufficient to reach systemic impact. This has, however, been observed in some classical IU projects and the lack of a clear *rationale* for firm-level interventions became evident.

The "official" rationale of past IU programmes has been "demonstration" and "upscaling" of successful interventions at "pilot" firms *(see conclusion o).* Such an approach can however only be useful if selected firms can serve as models for other firms or be the base to draw lessons on a larger scale. Selecting firms voluntarily per add may not ensure that the most appropriate firms are reached. Tacitly, there has also been a different rationale of targeting key players in a country's sub-sectors of competitive advantage. More recently, discussions have intensified at UNIDO about revisiting the IU rationale in the light of "new structural economics". This would require pre-project competitiveness analysis to identify pilot firms with the largest impact potential, such as f.e. more developed and innovative firms with employment and export generation potential and linkages to local firms *(see conclusion i).* It remains to be established to what extend such an approach would be compatible with the current practice of

selecting pilot firms randomly by calls for expressions of interest and with WTO rules.

o. Design weaknesses of "pilot" projects

The rationale of "upscaling" successful interventions at "pilot" firms has not always been followed through effectively. Pilot projects were not given the means to experiment with different methods, monitor results (*see conclusion r*), compare and evaluate their relative strengths and weaknesses before scaling up.

Synergies and coherence between the pilot initiatives and the activities in local institutions and government policies are essential for the sustainable impact of IU interventions. But dissemination and paving the way for wider replication was often not an explicit part of the design.

p. Challenges of sustainable capacity building

IU interventions encompass capacity building at different levels, including local institutions, support providers and consultants. Training local consultants has been a major area of intervention but often without a clear strategy of developing sustainable BDS markets which should be the final outcome of such capacity building. The good practice models promoted by the "Donor Committee for Enterprise Development" aiming at stimulating BDS markets are not internalized in the UNIDO approach. Analysis of existing BDS providers and markets and the embedding of UNIDO projects in these structures are often not sufficiently included in UNIDO IU interventions.

Capacity building of industry support institutions and Ministries is a complicated and lengthy process, in particular in lesser developed countries. The practice of setting up "upgrading offices" as new and administratively independent organisations with highly qualified (and highly remunerated) staff is challenging with regard to ownership and sustainability and may create parallel structures.

q. Coordination challenges and the "big picture"

IU is a process that goes beyond the individual firm and involves contributions from many parties, not only inside but also outside the UNIDO mandate, such as macroeconomic policy, finance, skill development and training, customs and trade logistics, etc. Without improvements on these fronts, IU efforts towards strengthening the competitiveness of target firms may remain ineffective. Taking into account this "big picture" and bringing relevant actors together, including

from the private and public sectors and within the public sector, as well as donors is therefore key.

It has been recognized that, as a UN agency, UNIDO could have a specific competitive advantage to act as "honest broker" and play a facilitating role in this regard. But UNIDO does often not strive for such a facilitating role; to the contrary, there is often no good overview of and limited coordination with national programmes and other donors' interventions.

To understand, highlight and simulate the multi-actor dynamics of IU interventions in different environments and identify critical assumptions for impact this TE has experimented with systems dynamics (SD) modelling and offers reflections on some practical experience with SD modelling as an innovative alternative to the conventional causal chain modelling for scenario building, facilitation and learning.

r. Limited reach of M&E

In the context of classical IU programmes, the development of "dash boards" and "integrated on-line programme management, monitoring and reporting tools" have been envisaged, but with limited success (see section 6.1). In some cases, the qualitative performances of beneficiary firms have been monitored but there are often no clear benchmarks for assessing IU, quantitative surveys and systematic data collection on performance in terms of production, sales, market share, value added, employment creation, profits and productivity.

This finding is consistent with UNIDO's current monitoring practice that tends to focus on outputs, making it difficult to evaluate outcomes, in particular longer term replication and institutional and policy-level outcomes of IU interventions. Indicators often also stop at the outcome level. Discussions between different units and branches have started on how to improve M&E systems. The cluster unit developed several M&E tools covering direct and indirect impacts (i.e. capacity building, upscaling) and undertook efforts to harmonize these tools.

s. Limited evidence of poverty reduction and other societal impact

Although most IU initiatives stress economic growth, employment creation and particularly poverty reduction as their main objectives, there is generally no explicit focus on these development objectives in UNIDO's IU interventions - neither in the design and the intervention logic nor in the implementation of programmes. Monitoring does also generally not explicitly focus on the effects on

development objectives and particularly poverty reduction. The causal chain models from the output level towards development objectives lack rigour and come often without the necessary assumptions and measurable indicators, and unintended negative results are often not taken into account. As the poverty impact is not consistently monitored, there is limited data and knowledge. Poverty impacts have also not been integrated in a systematic way in UNIDO's IU projects and support documents such as lessons learnt and manuals on how to extend the development impact of IU interventions. Besides poverty reduction also gender and other social issues including decent work are not systematically induced in IU interventions. There is a largely unused potential of using corporate social responsibility (CSR) initiatives as an entry point for decent employment and poverty reduction. This TE has developed a generic intervention logic for IU interventions with a specific focus on poverty impact and specific intervention points for "social impact drivers".

9. Recommendations

1. UNIDO should follow up and enforce the implementation of its "Initiative for Upgrading and Enterprise Competitiveness" (IUEC) launched in 2010/11. The TE found that the UNIDO service modules for value chain and cluster based IU programmes are complementary to "classical" IU and should be used in a more synergetic and demand driven manner. This finding is consistent with the IUEC aiming at the "development of a comprehensive and integrated approach" and a "composite package of UNIDO tools and programmes covering the full range of technical services that form the IU Initiative." The TE found that, while the features and provisions of the IUEC are very valuable, the initiative needs proper follow up and enforcement.
2. UNIDO should develop an overarching analytical framework capturing the key determinants of competitiveness and industrial development as well as specific country, sector and institutional contexts including an overview of already existing IU related policies and interventions. Valuable tools already exist, such as the high-level competitiveness analysis tool, the different value chain tools and the more supply-driven tools of relevant service modules. But these tools are used in parallel and not always consistently. The overall analytical framework should not work as a disconnected research activity but be the basis for dialogue among relevant actors and help Governments and UNIDO to make informed decisions which service modules are most appropriate for a given context and how they should be combined as well as which sectors and/or firms should be targeted. The analytical framework should also allow identifying indicators, benchmarks and targets for monitoring.
3. UNIDO should improve the M&E systems and key performance indicators (KPI) for its IU interventions. The IUEC (*see recommendation 1*) defined the "development of integrated on-line programme management, monitoring and reporting tools" as a priority for UNIDO. There are promising examples such as the M&E tools developed by the cluster programme. However, the TE found that the effectiveness of most IU

interventions is difficult to evaluate and to compare due to limits in systematic M&E procedures and common KPIs. It is recommended, as part of the process of developing a generic IU programme document, to define generic outputs, outcomes and impacts as well as a common system of KPI. Such tools should also emphasize development objectives (*see recommendation 10*) and include the identification of unintended negative results. In this regard, systems dynamics (SD) modelling could be used complementary to the conventional causal chain modelling.

4. UNIDO should revisit the rationale for firm level interventions in the light of the "new structural economics" paradigm to ensure systemic impact and structural change. The decision to what extent a "new structural economics" approach should be adopted is a political decision to be made by the respective partner country. But UNIDO should be able to provide valuable advice for decision making.

5. UNIDO should design its so called "pilot" logic more rigorously and how pilots are linked to wider replication. To be credible, "pilot" projects aiming at systemic impact with relatively small budgets need to be designed with a catalytic focus. "Pilot" actions must spell out and monitor the assumptions they make for structural change to happen. They must be given the means to experiment with different methods, compare and evaluate their relative strengths and weaknesses and stress the "demonstrative" nature of the action before extending the coverage and scale of objectives and actions.

6. UNIDO should adopt a more market based approach for strengthening business developing services (BDS). The availability of high quality BDS, in particular specialized technical consultancy and support services is a key success factor for IU initiatives. IU initiatives should go beyond training individual consultants but adopt a market based approach, establish linkages to existing service providers, analyze the strengths and weaknesses of the respective public and private BDS providers, identify market failures, and define strategies and targets for a better functioning of the respective BDS markets.

7. UNIDO should spend greater efforts on facilitating firms' access to finance. Access to finance is one of the key success factors of IU. The TE found that "classical" IU projects have spent considerable effort on distributing subsidies to beneficiary firms but were less successful in

facilitating access to finance. The attempts of "classical" IU programmes to promote linkages to financial sectors should be strengthened. Such linkages should be built into programme design and the respective assumptions should be monitored more thoroughly. Cooperation and strategic partnership with other actors involved in the financial sector and working directly with financial institutions in client countries is recommended.

8. UNIDO should clarify the rationale for intervening at regional level and ensure complementarity of regional and national IU programmes. The TE found duplications and even frictions between regional and national IU programmes. At the same time, regional programmes had difficulties to demonstrate their genuine added value at regional level. The EU is particularly interested in the regional dimension and there is room for UNIDO to learn from intra-European programmes about ways to strengthening the "subsidiarity principle".

9. UNIDO should complement its focus on export promotion with policy measures aiming to develop local and regional markets. The TE found that some projects have promoted the export and import competitiveness of firms in a complementary fashion. But many IU initiatives tend to focus on export competitiveness alone and to neglect local and regional markets. UNIDO should also create awareness among governments about public procurement and local content policies and how such policies can be combined with IU interventions.

10. UNIDO should strengthen the prospects of IU interventions to produce impact on poverty reduction, gender equality and other social issues. The TE found that many IU interventions stress poverty reduction and social benefits as development objectives but, at the same time, their intervention logics lack methodological rigour in this regard. The TE offers a generic intervention logic for IU interventions with a specific focus on poverty impact and specific intervention points for "social impact drivers". UNIDO should elaborate on this generic intervention logic when designing new IU projects. Corporate social responsibility (CSR) initiatives can be a promising entry point for decent employment and should be more integrated in IU programmes. Gender mainstreaming has been neglected and should be consistently implemented into IU initiatives.

11. UNIDO should develop its competitive advantage as a “honest broker” and strive for a more prominent role as a facilitator. IU involves contributions from many parties, not only inside but also outside the UNIDO mandate. Taking into account the “big picture” and is therefore key for IU interventions to become effective. However, the TE found that coordination and governance mechanisms exist but overview of and coordination with national programmes and other donors’ interventions remain limited. UNIDO’s IU initiatives should therefore stress the importance of external coordination, links to national level policies and programmes, and the involvement of the private sector, i.e. national and regional business associations. To highlight the multi-actor dynamics of IU interventions in different environments, this TE has experimented with SD modelling which could be taken forward for generic IU interventions.

Annex A: Terms of Reference

In line with the EVA workprogramme for 2010 – 2011, this Thematic Evaluation (TE) has been initiated in 2010 and will be conducted in 2011. The present draft TORs have been prepared by ODG/EVA as a basis for the discussion of the scope of the TE and its approach.

1. Evaluation Objective

This TE aims to provide UNIDO Management with evaluative information on the UNIDO portfolio of projects dealing with various forms of enterprise upgrading. The TE will offer recommendations for further improvements of UNIDO's Upgrading initiatives, taking into account the multi-disciplinarity of the subject and its relevance to the "One UNIDO" agenda.

2. Scope of upgrading initiatives

Enterprise upgrading projects and initiatives are conducted by UNIDO and other players in different environments and in a variety of forms. The practical usefulness of the TE will depend on striking a proper balance between a comprehensive scope and a focus on those initiatives with specific relevance for UNIDO. In this chapter, different types of upgrading initiatives will be screened, including also non-UNIDO initiatives that are deemed relevant for reference purposes and their potential for future innovation.

2.1. "Upgrading" initiatives in the Euro-Mediterranean context

In the Euro-Mediterranean context, the concept of Upgrading emerged during the late 1980s in connection with the accession of Portugal and Spain to the European Union (EU). As part of the accession process, the EU financed substantial support programmes in order to allow these countries to prepare their economies for the requirements but also for the opportunities of the Common European Market. At the same time, these support programmes were meant to absorb the accession shock for the weaker parts of the industrial fabric. Portugal in particular became well known as a country that applied upgrading programmes on a larger scale and over a longer period of time. The so called PEDIP programmes covered not only industry but also the upgrading of Portugal's vocational training and research infrastructure.

During the late 1990s, when the negotiations between the EU and the Southern Mediterranean countries about the Euro-Mediterranean Free Trade Zone started, similar instruments became part of the negotiation process. In this particular historical context UNIDO contributed to the re-design of Upgrading as a policy instrument for Southern Mediterranean countries. The UNIDO IPs in Tunisia, Algeria, Morocco, Egypt and Syria included Upgrading as a component. The National Upgrading Programme of Tunisia in particular is widely recognized as a benchmark and one of the main drivers of Tunisia's sustained industrial modernization process over the last decade.

The next wave of interest in Upgrading programmes has been developing in connection with the negotiation of Free Trade Agreements between the EU and African countries. Senegal was the first country in West-Africa that launched a national Upgrading programme in 2006. At about the same time, the West African Union (UEMOA) launched an Upgrading Programme at a regional scale. Both programmes are currently implemented with financial support from France and technical assistance (TA) from UNIDO. UNIDO also provides TA to Cameroon for its national Upgrading programme, which is financially supported by the EU. Other regional Upgrading programmes for Africa and the Caribbean are currently being considered for potential EU funding.

2.2. "Upgradation" initiatives in India

Government funded Upgrading programmes are also conducted in other regions and by other countries. India is one of the most prominent examples. Since 1991, the Indian economy has undergone liberalization and its integration in the global economy is deepening. On one hand, liberalization and globalization provided unprecedented opportunities for the growth and expansion of the industry. On the other hand, Indian industry faces stiff competition from free imports and spends considerable efforts to increase its competitiveness. India perceives a continuous need to benchmark the Indian manufacturing sector against the best in the world and to enhance the competitiveness of its manufacturing sector. To this end, the Government of India has put in place a number of "upgradation" schemes.

The National Manufacturing Competitiveness Council (NMCC) has been set up by the Government to provide a continuing forum for policy dialogue to energise and sustain the growth of manufacturing industries in India. The NMCC suggests ways and means for enhancing the competitiveness of the manufacturing sector including identification of sub-sectors which have the potential for global competitiveness; current strengths and constraints of identified sectors, and recommend National level industry/sector specific policy initiatives as required for enhanced growth of the manufacturing sector.

In its "Manufacturing Strategy Paper" of (2006) the NMCC recommended *that "the cluster approach should be the preferred route for improving the manufacturing competitiveness. New and innovative approaches to cluster development should be adopted."*

The Industrial Infrastructure Upgradation Scheme (IIUS) was launched in 2003 with a view to enhancing competitiveness of industry by providing quality infrastructure through public-private partnership in selected geographical clusters. Besides physical infrastructure, the IIUS also covers handholding of firms to achieve quality management certificates and benchmarking of firms against international standards.

The Technological Upgradation Fund Scheme (TUFS) of the Small Industry Development Bank of India (SIDBI) provides the textile industry with access to finance at internationally comparable interest rates. TUFS aims at upgrading the industry's technology level and includes a SME Rating Scheme that uses the cluster approach to facilitate objective and speedy credit decisions as well as to improve the quality of the

credit portfolio of the lenders by lowering their cost of acquiring relevant information at the cluster level.

Since 1999, UNIDO has lent its support to various upgradation initiatives in India:

- UNIDO Partnership Programme to support SMEs in the Automotive Industry (ongoing since 1999);
- Numerous cluster support projects, such as the pharmaceutical cluster Cuttack-Bhubaneshwar;
- UNIDO "Cluster Twinning" project with Italy introducing, inter alia, mutual credit guarantee schemes in cooperation with SIDBI;
- International Centre for the Advancement of Manufacturing Technology (ICAMT).

2.3. Sector specific "upgrading" initiatives

Over the years, UNIDO has been involved in a number of sector-specific upgrading initiatives.

The automotive industry project in India mentioned above has been one case in point. Other UNIDO upgrading projects for the automotive industry exist in South Africa, Ukraine and Serbia.

More recently, the pharmaceutical sector has become the subject of a UNIDO operation aiming to upgrade small and medium pharmaceutical manufacturers in a number of developing countries with the aim to locally manufacture essential generic drugs.

A large number of developing countries have initiated sector specific initiatives for the textile and leather industries. In the past, several IPs planned to include textile specific upgrading components. However, in most of these cases funds mobilization was not very successful. The above mentioned Upgrading Programme in Syria is the first IP with a strong textile component that is actually being implemented.

The IP Ethiopia entitled "Integrated Programme for Private Sector Development and enhanced competitiveness with special emphasis on textile and garments, leather and leather products and food processing" is another example of a sector specific upgrading initiative. Since 2000 UNIDO has a long-standing presence in the Ethiopian leather sector, with a sequence of projects aiming at upgrading the Ethiopian leather industry.

For the garment sector, the Ethiopian Government conducted, in close cooperation with UNIDO, a benchmarking study, which was endorsed in December 2008 and is currently being used by the Government for its garment related industrial policies. A similar initiative for the textile sector is underway. The core of this initiative is a benchmarking study on the Ethiopian textile industry that should "provide industry specific benchmarks and other Good Manufacturing Practices for company's self-assessment and will also be expected to come up with recommendations on how performance and work procedure can become more efficient and improved."

Since 2006, UNIDO conducted similar textile benchmarking studies in a number of other African countries. These studies go into considerable depth by analyzing the competitive advantages and challenges of the textile industry and its different segments in the given countries and offer scenarios and strategies for upgrading and expanding the respective national textile industries.

2.4. "Upgrading" of value chains and clusters

A more developed application of the Upgrading concept uses value chains. UNIDO's leading role in this modality goes back to 2003, when the Organization published a series of monographs, exploring the "Prospects for Upgrading by Developing Countries" in a number of global value chains such as the automotive, wood furniture, apparel and agroindustry. Since then, interventions at cluster level have become a particular UNIDO strength. The growing number of projects in this area were covered by a recent TE.

A recent guidebook from ILO explains the interest of adopting the value chain and upgrading concepts simultaneously: *"The competitiveness of the national economy thus is not only a matter of the performance of individual enterprises, but also of the degree to which the various companies, both large and small, cooperate efficiently. Consequently, one can speak of the "systemic competitiveness" of the value chain. Unless it improves, not much economic growth and even less pro-poor growth will be achieved."*[9] The World Bank is advocating a similar policy tool kit for enhancing the export competitiveness of company clusters.[10]

A similar emphasis on "systemic competitiveness" of value chains can be found in a recent staff working paper from UNIDO.[11] The paper recommends to analyze the socio-economic, industrial and technological environment of the targeted value chains along the following lines:

- *position the chain vis-à-vis alternatives or competitors – benchmarking;*
- *identify strategic and non-strategic activities;*
- *raise awareness among chain actors concerning cost drivers, margins for price negotiation, and possibilities for value addition;*
- *recommend leverage points for action at policy and institutional levels as well as at enterprise level.*

2.5. Environmental and social upgrading

In recent years, the initial understanding of "enterprise upgrading" as improved productivity or economic performance of companies has broadened towards including the social and environmental dimensions. Firms in developing countries have the potential to not only "climb up the value chain" (and hence upgrade their economic performances)

[9] ILO Guide for Value Chain Analysis and Upgrading, 2009
[10] Clusters for competitiveness (World Bank / ITC, 2009)
[11] Agro value chain analysis and development (2010)

but to also improve their performance with regard to environmental and social standards, provided the proper incentives and support systems are in place. [12] [13]

A number of recent UNIDO projects aim at activating this potential for environmental and social upgrading by appropriate support, such as the most recent phase of the national upgrading programme of Senegal.

2.6. The policy dimension of "Upgrading"

The analysis above shows that enterprise upgrading can be understood in two different ways. On the one hand it describes the complex and multi-dimensional improvement processes that firms in developing countries undergo under the conditions of globalization in general and global value chains in particular. On the other hand, upgrading describes policies used by policy makers in emerging and developing countries aiming at the modernization and competitiveness of companies.

The ultimate objective of upgrading initiatives is "competitiveness". A policy paper published in 2003 by the French Development Agency (AFD)[14] underlined the opportunities that trade and globalization offer to developing countries but also argued that, in order to make optimal use of these opportunities, governments have a "key role" to play and must develop and use appropriate policy instruments to "accompany" the opening of their economies. The paper concludes that these policy instruments should not be limited to improving the business environment alone but should also allow for pro-active interventions at the level of sectors and clusters, and even *"helping talented companies with identifying adequate strategies to improve or at least preserve their competitive advantages"*.

Quite clearly, this pro-active "interventionist" style of policy making reaching out to the company level is not exactly in line with neo-classical economic thinking. However, as the UNIDO's "Making It" magazine recently put it, "the era of the Washington Consensus is over" and "Industrial policy is not a taboo any more". This renaissance of industrial policy motivates also a renewed interest in the policy dimension of Upgrading.

3. UNIDO's methodological guide to Upgrading

In 2003, UNIDO published a Methodological Guide[15] that became the reference tool for the UNIDO Upgrading Programmes in the Euro-Mediterranean region and in sub Sahara Africa. In this guide, the following "two-step approach" is suggested:

[12] Upgrading clusters and small enterprises in developing countries; Environmental, labour, innovation and social issues; Ashgate Publishers; 2008
[13] www.capturingthegains.org
[14] Marniesse, Sarah et Filipiak, Ewa ; Compétitivité et mise à niveau des entreprises - Approches théoriques et déclinaisons opérationnelles ; Agence Française de Développement (2003)
[15] UNIDO Methodological Guide "Restructuring, upgrading and industrial competitiveness" (2003)

1. *The first step is designed to promote the modernization of the immediate environment by developing national restructuring and upgrading programmes and to establish a legal framework and management structure (in the form of upgrading offices), strengthening of the capacities of support and consultancy structures, improvement of quality infrastructure (quality assurance, certification, accreditation, metrology), and creation of a fund for upgrading and modernizing industry;*

2. *The second step is designed to promote the development of competitive industries by helping enterprises, on a pilot basis, to position themselves most advantageously in an open economy and to formulate a strategy adapted to the new competition situation.*

The first "step" of this sequential approach is described as follows:

> *Most developing countries have support institutions that are not developed or not sufficiently developed to be able to assist industrial enterprises in their adaptation and upgrading efforts. It is necessary to review these institutions, redefine their roles and activities and strengthen their capacities with a view to providing efficient technical assistance and support to meet the needs of enterprises in the new context of international competition. The programme is therefore designed to strengthen industrial support institutions such as national standardization, metrology, certification and accreditation agencies, and to promote the international recognition (through mutual recognition agreements) of product, system, measurement and test certification. It is also designed to establish or strengthen the capacities of technology centres at a sectoral (agro-food, textile, etc.) and/or horizontal (packaging, engineering, etc.) level so as to provide industrial enterprises with the required technical assistance.*

Remarkably, the Methodological Guide does not provide any further description of the first step. For the second step of promoting "*the development of competitive industries by helping enterprises, on a pilot basis"* the Methodological Guide recommends a sector approach by which

> *"Strategic studies and analyses need to be carried out in order to determine the industries in which the country possesses genuine and substantial advantages and to identify the industries that will flourish in the immediate future and/or in the long-term, taking into account the competitive advantages already existing and/or to be created and using relevant national and international technical, commercial and financial data as the basis. In order to carry out such strategic studies it is useful to conduct comparisons between industries and countries on the basis of performance and competitiveness indicators and benchmarking."*

The cornerstone of the UNIDO Upgrading approach are "diagnostic studies" at company level and the Methodological Guide distinguishes three types of such studies: Overall (in-depth) strategic diagnoses, express diagnoses and functional diagnoses. However, only the procedure for overall strategic diagnoses is further developed in the Guide. This procedure includes five dimensions:

- Analysis of external sources of competitiveness
- Financial diagnosis
- Diagnosis of managerial skills and quality
- Analysis of product markets and strategic positioning
- Diagnosis of technical capacities

Quite clearly, the diagnostic company studies are a specific type of Business Development Services (BDS) and the Methodological Guide reads to a large extent like a text book for management consultants or other providers of such BDS. While the delivery of BDS to companies are the backbone of Upgrading programs, the delivery mode of these BDS is a major issue that is not dealt with in the Guide.

4. Business Development Services (BDS) as a cornerstone for Upgrading

Since the late 1990s the donor community gives high attention to needs driven mechanisms by which BDS are delivered to companies. The "Guiding Principles" published by the Donor Committee for Enterprise Development[16] have become a reference for the design and assessment of development interventions in this area.

The "Guiding Principles" define BDS as *"services that improve the performance of the enterprise, its access to markets, and its ability to compete"* including training, consultancy and advisory services, marketing assistance, information, technology development and transfer. The document makes a distinction between "operational" and "strategic" business services. Operational services are defined as those needed for day-to-day operations, while strategic services, on the other hand, *"are used by the enterprise to address medium- and long-term issues in order to improve the performance of the enterprise, its access to markets, and its ability to compete."* Taking into account this definition, Upgrading depends to a large extent on the availability of strategic BDS in a given context.

Looking at the delivery mechanism for BDS, the "Guiding Principles" state that *"traditional interventions have failed to provide quality, affordable BDS to a large proportion of the target population of small enterprises"* and express concerns that *"publicly-provided and publicly -funded services have not achieved their objectives: enterprise productivity and competitiveness, job creation, poverty alleviation, and social mobility."* With the gradual adoption of the "Guiding Principles" a paradigm shift occurred from the "old approach" by which Government agencies or donors delivered BDS directly towards a market based approach.

The following "guiding Principles" will be duly considered for this TE:

- Donor and government support should be shifted away from direct support to particular BDS providers toward facilitation functions that develop the market in a sustainable way.

[16] Business Development Services for Small Enterprises: Guiding Principles for Donor Intervention (2001)

- Before designing interventions to develop BDS markets, it is critical to understand existing BDS markets and to conduct assessments of such markets

- While recognising the difference between "perceived needs" and "real needs", appropriate weight should be given to perceived needs, relative to the more traditional expert assessment of real needs.

- Subsidies should be applied, if at all, (1) to achieve specific BDS market development objectives; (2) at pre- and post-transactional level and not at the level of the BDS transaction (i.e., direct subsidies to reduce the cost or price of services) because, as a general rule, transactional subsidies are likely to be more distortionary than developmental subsidies; (3) with a clear exit strategy.

5. The macro, meso and micro levels of "upgrading"

It follows from the above screening that upgrading programmes encompass a large variety of aspects and mutually supportive activities. Diagram 1 shows a tentative mapping at the micro-level (companies), the meso-level (BDS and other support infrastructure) and the macro-level (industry-related policies).

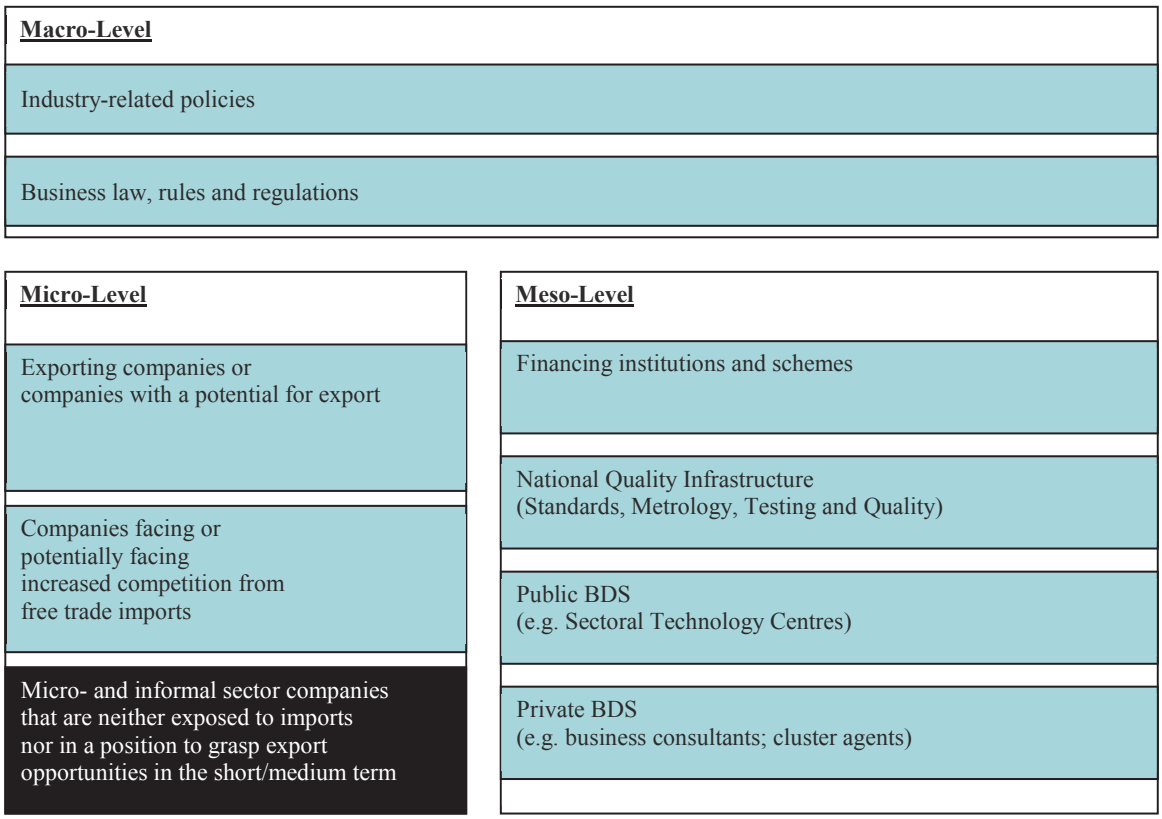
At the micro-level, Upgrading programmes target *existing* firms of two different categories: those facing increased competition from imports and those that want to grasp increased export opportunities. In that sense, a distinction could be made between "defensive" and "offensive" upgrading. It has been recognized that upgrading programmes do not target enterprise creation or micro-firms in the informal sector.

A more in-depth definition of the various dimensions of upgrading at the firm level can be found in the literature:[17]

- Process upgrading: transforming inputs into outputs more efficiently by re-organising the production system or introducing superior technology.
- Product upgrading: moving into more sophisticated product lines (which can be defined in terms of increased unit values).
- Functional upgrading: acquiring new functions (or abandoning existing functions) to increase the overall skill content of activities.
- Inter-sectoral upgrading: firms of clusters move into new productive activities. For example, knowledge acquired in producing televisions might be used to make monitors and other computer equipment.

[17] Humphrey.J and Schmitz H. (2002), How does insertion in Global Value Chains Affect Upgrading in industrial Clusters?, Regional Studies 36, pp 1017-1027.

Diagram 1: Upgrading Map



From a more operational perspective, many upgrading programmes distinguish between "material" or "hard" (equipment) and "immaterial" or "soft" (management and training) upgrading activities at the firm level. This distinction is important because of the different time horizons and levels of investment involved and the respective support instruments and subsidy levels applied.

Looking at the meso level, "access to finance" is the most obvious function that needs to be in place for successful company upgrading. The crucial importance of financing institutions and schemes is reflected in the design of the majority of programmes where the set up and management of specialized financing mechanisms for upgrading tends to absorb a very substantial part of the programme inputs in terms of finance and HR.

The National Quality System (NQS) is the second dimension at the meso level that is closely related to Upgrading. In UNIDO's "Compete - Conform - Connect" model "compete" stands for the ability of firms to produce competitively and

"conform" for their ability to comply with international standards (SMTQ).[18] While the relevance of SMTQ for "Trade Capacity Building" and hence for "offensive" upgrading is widely recognized, the linkage between SMTQ and "defensive" upgrading is often overlooked. It has been one of the prominent findings of the recent TE of UNIDO's SMTQ activities that projects aiming at improvements of the NQS should be designed not only for exporters but also for firms operating on the national market.

BDS is the third relevant dimension at the meso level. Most upgrading projects are involved in building BDS capacity. Broadly, two types of services (technical and managerial) and two delivery models (public and private) can be distinguished. As explained above (chapter 4) the degree of adoption of the "guiding principles" for BDS delivery will be scrutinized by this TE.

Last but not least upgrading programmes are characterized by their interventions at the macro level. As explained above (chapter 2.6) the renewed interest in this dimension will also be reflected in the evaluation questions.

6. Mapping of UNIDO interventions and stylized intervention logic

Table 1 shows a tentative mapping of the UNIDO interventions to be covered by the Thematic Evaluation. The tentative categorization has been developed on the basis of the analysis above.

[18] Until mid 2010 "upgrading" projects were managed by the TCB branch. Since then, these programs were moved to the "Business, Investment and Technology Service" branch (formerly "Private Sector Development").

Table 1: Overview mapping of UNIDO interventions to be covered by the Thematic Evaluation

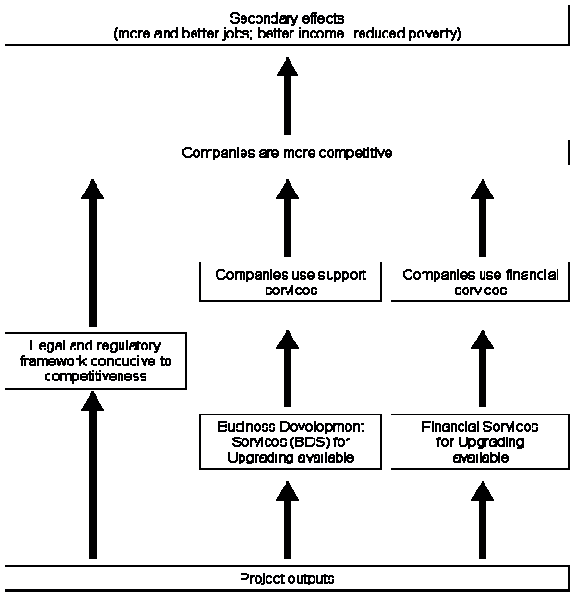
		"Upgrading"				"Value Chain"		"Agglomeration"	
		Financial institutions	**Quality Infrastructure**	**Technology Centres**	**Enterprises**	**Suppliers SPX**	**Export Consortia**	**Sectors**	**Clusters**
	IP Tunisia	Upgrading Fund	ISO & HACCP certification	Food; textile; leather	Diagnosis and upgrading plans				
	IP Algeria	Upgrading Fund	ISO & HACCP certification	Food (later)	Diagnosis and upgrading plans	Small disconnected component	Small disconnected component		
	IP Egypt	Investors association		Leather	Diagnosis and upgrading plans				
	IP Senegal	Upgrading Fund			Diagnosis and upgrading plans				
	IP Syria	Financial sector analysis; soft-loan scheme planned	ISO 9000 planned but cancelled	Textile	Diagnosis and upgrading plans			Textile	
	UEMOA - Quality		SMTQ programme (full scope)						
	UEMOA - MaN	Upgrading Fund			Diagnosis and upgrading plans				
	SPX South Africa			SPX centre	Matching, benchmarking			Automotive	
	SPX India			SPX centre	Matching			Automotive	
	India Automotive				Kay Zen			Automotive	
	MACLE Lebanon			Packaging				Food	
	Vietnam		Disconnected SMTQ project		Diagnosis	Italy twinning; SPX (later)		Textile, leather, furniture	
	Ethiopia			Leather				Leather	

The categorization distinguishes three dominant logics of intervention:

1. Upgrading of individual organizations (private companies and public/financial institutions);
2. Value chain approaches (SPX supplier relationships and export consortia)
3. Agglomeration approaches (sector and/or clusters)

Table 2 shows a tentative mapping of the interventions of the first type. Diagram 2 shows a very generic and tentative intervention logic, which will have to be refined and differentiated during the Thematic Evaluation.

Diagram 2: Stylized Intervention Logic



The Thematic Evaluation will cover 13 projects/programmes spread over 19 countries:

- Africa Region: India; Vietnam
- Arab Region: Algeria; Egypt; Lebanon; Syria; Tunisia;
- Asia Region: Ethiopia; Senegal; South Africa; UEMOA (Benin; Burkina Faso; Côte d'Ivoire; Guinea Bissao; Mali; Niger; Senegal; Togo)

These projects/programmes are implemented through different implementation modalities:

- Five Integrated Programmes (IPs at national level)
- Two regional programmes (in UEMOA)
- Six "stand-alone" projects (more or less linked with other interventions in the same country)

Table 2: Mapping features and issues of UNIDO upgrading projects

	Tunisia	Algeria	Egypt	Senegal	Syria
		Policy	**support**		
National upgrading programme	Large PMN launched in 1990 with UNIDO assistance	PMN exists but also other big programmes in parallel	Large Industrial Modernization programme (EU funds in 2001)	PMN launched prior to project	Designed by UNIDO as part of project
Upgrading unit	Strong BMN exists but UNIDO staff not part of it	Idea to create a "Modernization agency" explored but not pursued	UMU (UNIDO Modernization Unit) in parallel to existing structure	Capacity building of BMN was part of project	UMU set up; could become PPP with CCI
		Systemic	**Approach ?**		
Financial system linkages		Weak banking system identified as major obstacle; but no cooperation with banks included	? (involvement of investors association)		Financial sector analysis done; Upgrading plans not bankable; Soft-loan scheme planned
Private sector linkages	Weak	Weak	SC chaired by president of Investors Association		
Technical centres (TC)	Support to 3 technical centres under other IP component	Agro TC created under follow-up project	Support to leather centre under other IP component		Support of two textile centres planned but only one done
		Project	**design**		
Regional focus	No	Country wide (Alger; Ghardaia; Tlemcen; Anaba)	Borg el Arab (Greater Alexandria)	No	No
Sectoral focus	No	Agro-business	IP leather component but no synergy		Textile (initially also leather but refocused)
Awareness building		Awareness campaign >1000 participants	no		
Training of consultants		214 candidates; 46 selected and trained	89 consultants; 20 auditors; 36 COMFAR		52 (100 planned but not enough candidates)
Twinning of consultants	Yes;	Yes but problems with on-the-job training	No international consultants used (cost reduction)		Successful on-the-job training
Upgrading plans		Strategic Global Diagnosis	100 planned; 140 assisted; 55 upgraded		36
Thematic focus		Most diagnosis global; subproject HACCP	63% of TA for ISO certification; 14% for HACCP		ISO 9000 planned but no need (cancelled)
Short-term benefits?		"Coaching" for 12 firms added at later stage	3 step approach narrowed down to "lighter" 1 step		
Selection of beneficiaries		Public calls (e.g. 16 candidates, 12 selected)	?		
Beneficiaries cost sharing	No	No	15-20% cost sharing: better needs orientation and ownership		
M&E	GTZ project set up monitoring scheme	No database of beneficiaries	No outcome monitoring		No indicators; no evidence based results
Duration		2000 - 2006	No extension > 2 years; 50% (1.5 mio $) of unspent balances		

Information Basis

The information basis of the TE includes project progress reports UNIDO evaluations and external evaluations.

The following existing UNIDO evaluations will be used:

- IP and CSF evaluations: Tunisia (2005); Algeria (2006); Egypt (2006); India (2007); Senegal (2008); Saudi Arabia (2008); Ethiopia (2009); Syria (2009);
- Thematic evaluations: ITPOs (2010); Cluster and networking initiatives (2010); SMTQ (2010);
- Self-evaluation of the UNIDO upgrading programme in UEMOA countries (2010);
- Evaluation of the MACLE project in Lebanon (2010);
- Evaluation of UNIDO Assistance to the Ethiopian Leather Institute (2008).

The following UNIDO self-evaluation will be used:

- Self-evaluation of the upgrading project in Cameroon by the EU (2010);

The following existing donor evaluation of a UNIDO project will be used:

- EU evaluation of the SMTQ programme in UEMOA (2005);

The following forthcoming UNIDO evaluations will feed into this TE:

- Country evaluations: India (2010); Vietnam (2011); South Africa (2011)

A web-based survey has already been conducted by UNIDO among beneficiary companies in 14 countries.

Table 3 provides an overview of the available reports, the planned evaluations and the responsible project managers at UNIDO HQ.

In addition, external documents will be used as appropriate.

Table 3: Sources of information for the Thematic Evaluation

		Available					Planned		Project Manager
		Progress reports	Self-evaluation	Independent evaluation[19]	Impact evaluation	EVA company survey	Country evaluation	Project evaluation	
	IP Tunisia	X		2005		X			Dhaoui
	IP Algeria	X		2006		X			Dhaoui
	IP Egypt	X		2006		X			Dhaoui
	IP Senegal	X		2008		X			Dhaoui; Patacconi
	IP Syria	X		2009		X			Patacconi
	(UEMOA - Quality			2005				Pending since 2010	Bau)
	UEMOA - MaN		X			X		Pending since 01/2011	Patacconi; Feki
	SPX South Africa					X	10/2011		Kratzsch
	SPX India			2007; 2011		X			Kratzsch
	India Automotive			2007; 2011	X				Weisert
	MACLE Lebanon	X		2010		X			Patacconi
	Vietnam	X					11/2011		Patacconi; Ceglie
	Ethiopia			2008				02/2012	Calabro

[19] relatively old (2008 or earlier)

7. Evaluation steps

The Thematic Evaluation is being conducted by the following staged approach:

	Step	Date	Status
1	Draft TORs (version 1) circulation and collection of feed-back	January/February 2011	Finalized
2	Screening of potentially relevant projects	February/March 2011	Finalized
3	Survey among beneficiary companies	April – June 2011	Finalized
4	Stocktaking and revised TORs (version 2)	August 2011	Finalized
5	Draft analytical framework Refined generic intervention logics Refined evaluation questions	15 September 2011	
6	Interviews with project managers	September/October 2011	
7	Country evaluation in South Africa	September 2011	
8	Presentation and discussion of preliminary results at a workshop with UNIDO staff	4 November 2011	
9	Country evaluation in Vietnam	November 2011	
10	Interim report	30 November 2011	
11	Additional field work (to be decided)	January/February 2012	
12	Final report	March 2012	

In addition to the documents mentioned in chapter 7 above, the following complementary information gathering and analysis will be conducted as appropriate and feasible within the existing financial and time constraints:

- Reviewing relevant UNIDO publications, manuals and guidelines;
- Updating the information from past evaluations through interviews with project managers at UNIDO HQ;
- Information on "upgrading" initiatives of other parties for reference purposes as appropriate and feasible.

An important external source of information that will be used for reference purposes is the final evaluation by the EU of their multiannual Upgrading programme in Morocco (60 million euro).

8. Tentative evaluation questions

The following tentative evaluation questions will be used, together with the mappings in Tables 1 and 2, the results of the company survey and the analysis of additional documents as a basis for the development of the deliverables mentioned in chapter 8, step 5.

1. What are the differences and commonalities of UNIDO Upgrading projects? What are the different environments under which these projects were conducted? What are the differences and commonalities of UNIDO projects as compared to similar initiatives of Governments or other development agencies?
2. To what extent did the projects develop and successfully apply a systemic approach to identify and address the critical weaknesses, opportunities and threats of the company *environment*?
3. To what extent did the projects systematically identify the appropriate target companies and address their priority needs?
4. To what extent did the projects align with the "guiding principles" for the development of BDS markets of the Donor Committee for Enterprise Development?
5. How did the projects deal with the potential negative trade-offs of direct state aid interventions at company level (e.g. market distortions; band wagon and dead weight effects; picking winners/losers)?
6. To what extent did the projects contribute to (or are likely to contribute to) enhancing the competitiveness of target companies?
7. To what extent is it plausible that these projects - through enhancing competitiveness - may ultimately contribute to achieving the MDGs?
8. What are "key success factors" for this type of projects depending on the respective national, regional and sectoral environments? Which benchmarks and Good Practices could be applied for the design of future Upgrading initiatives?

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Annex C: List of persons met

HQ interviews:

Ms. Aurelia Calabro

Mr. Gerardo Patacconi

Ms. Natascha Weisert

Mr. Rafik Feki

Mr. Stefan Kratzsch

Mr. Gilles Galtieri

Mr. Lamine Dhaoui

Mr. Jean Ayoub

Mr. Alain Nickels

Mr. Ivan Krahl

Mr. David Yuen-Hoi Lee

Mr. Michele Clara

Mr. Frank Hartwich

Participants of feed-back workshop in November 2011:

Mr. Farrukh Alimdjanov

Ms. Siham Chafak

Mr. Mohamed Dhaoui

Mr. Rafik Feki

Mr. Jean Ayoub

Mr. Stefan Kratzsch

Ms. Nilgün Tas

Mr. Johannes Dobinger

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