

FORECASTING DEMANDS FOR NEW PROFESSIONAL PROFILES: THE ORGANIZATIONAL APPROACH

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SENAI: BRAZILIAN SYSTEM FOR INDUSTRIAL APPRENTICESHIP



CHALLENGE

HOW TO ANTECIPATE FUTURE DEMANDS IN REGARDS TO
PROFESSIONAL PROFILES?

IN DIFFERENT INDUSTRIES

TO BE ABLE TO PLAN, DESIGN AND IMPLEMENT CHANGES
IN THE EDUCATIONAL SYSTEM

IN DUE TIME.

THE AIM OF THE ORGANISATIONAL FORECAST

It is now more than 30 years of restructuring and reconfiguration of every firm around the world

- Automation
- Information Technologies
- Focusing, subcontracting, offshoring, ...
- Networking (Supply Chains, Global Value Chains, ...)
- leading to new forms of work organisation
- demanding new professional profiles

HOW TO CREATE A METHOD FOR THE FORECASTING OF THE LIKELY PROFESSIONAL PROFILES IN 10 YEARS TIME ?

Project team

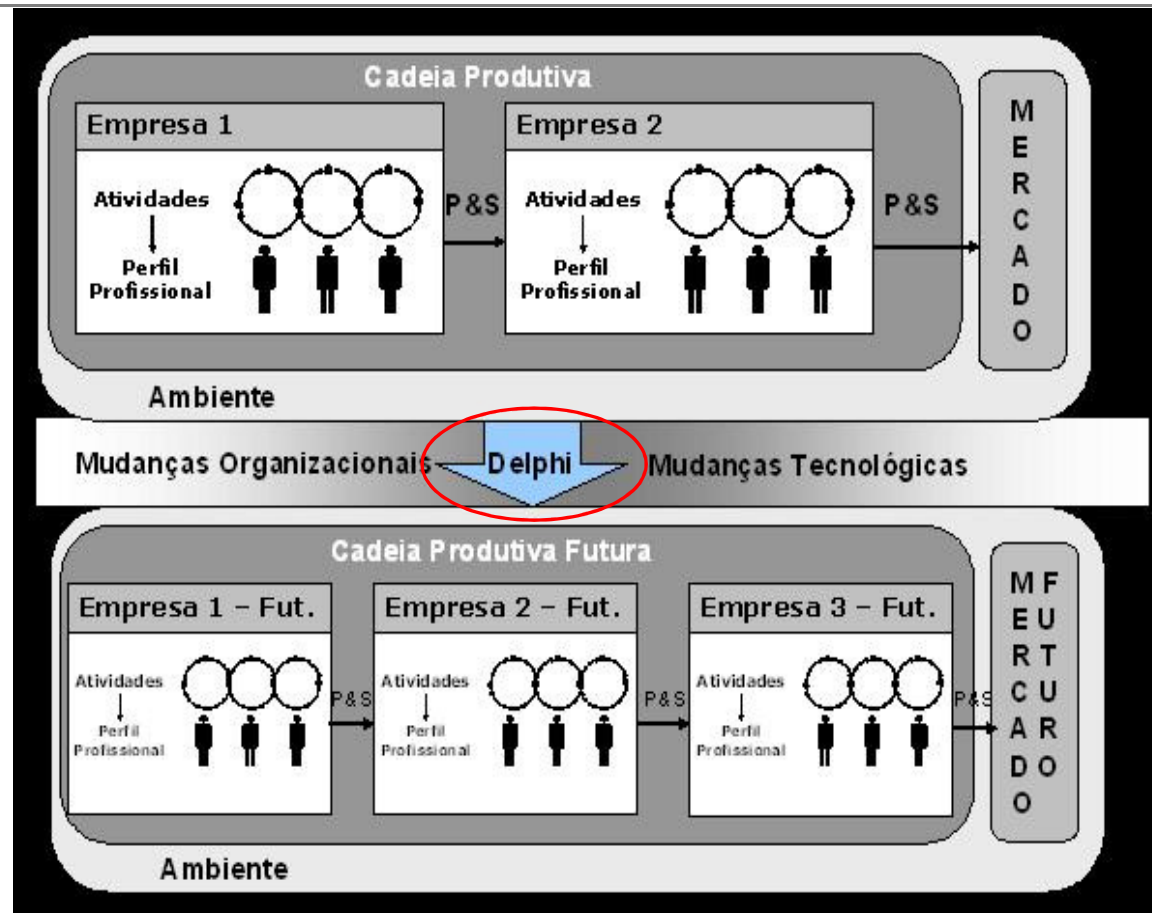
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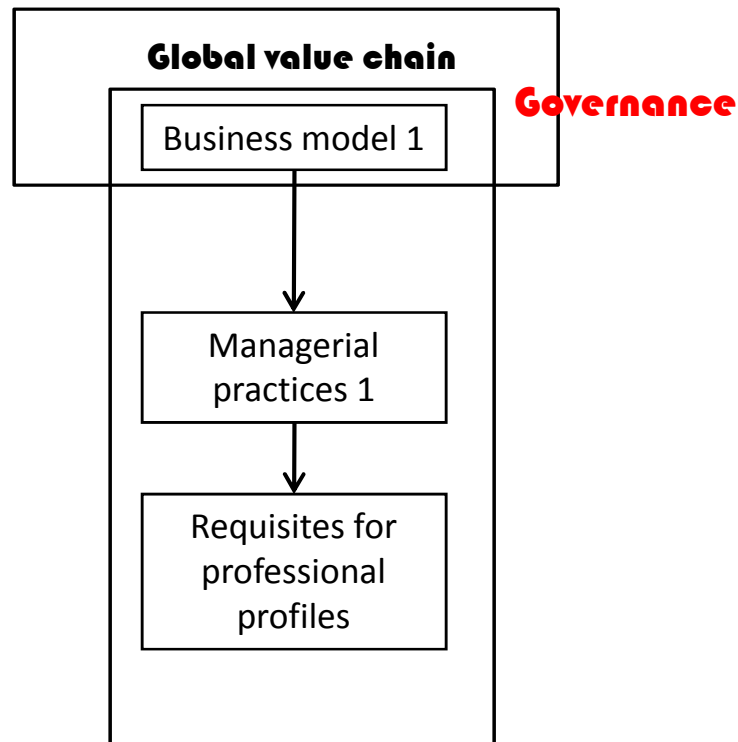
Experts in different types of industries

Team of graduate and undergraduate students from both institutions

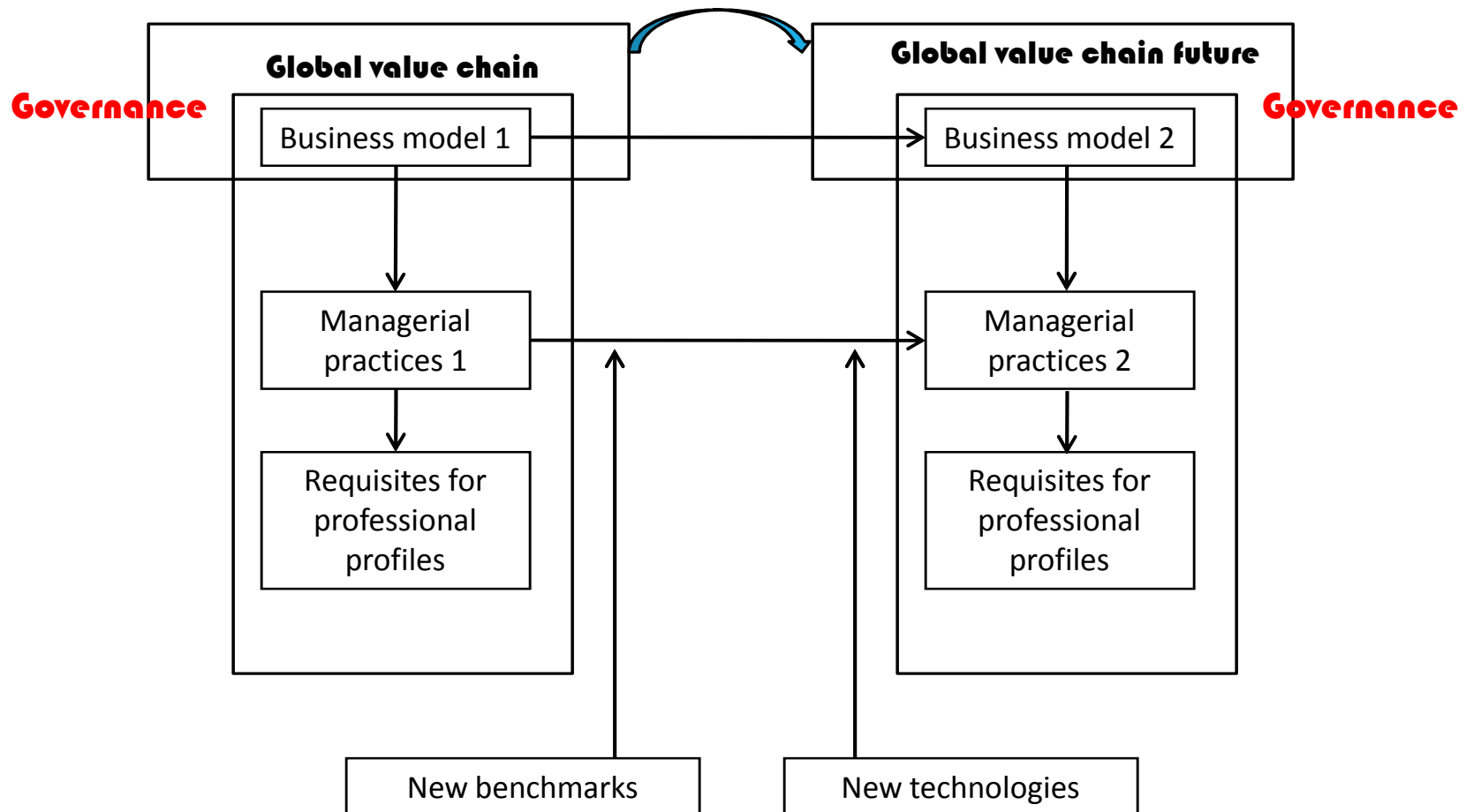
Organizational forecast (approach adopted in 2004-8)



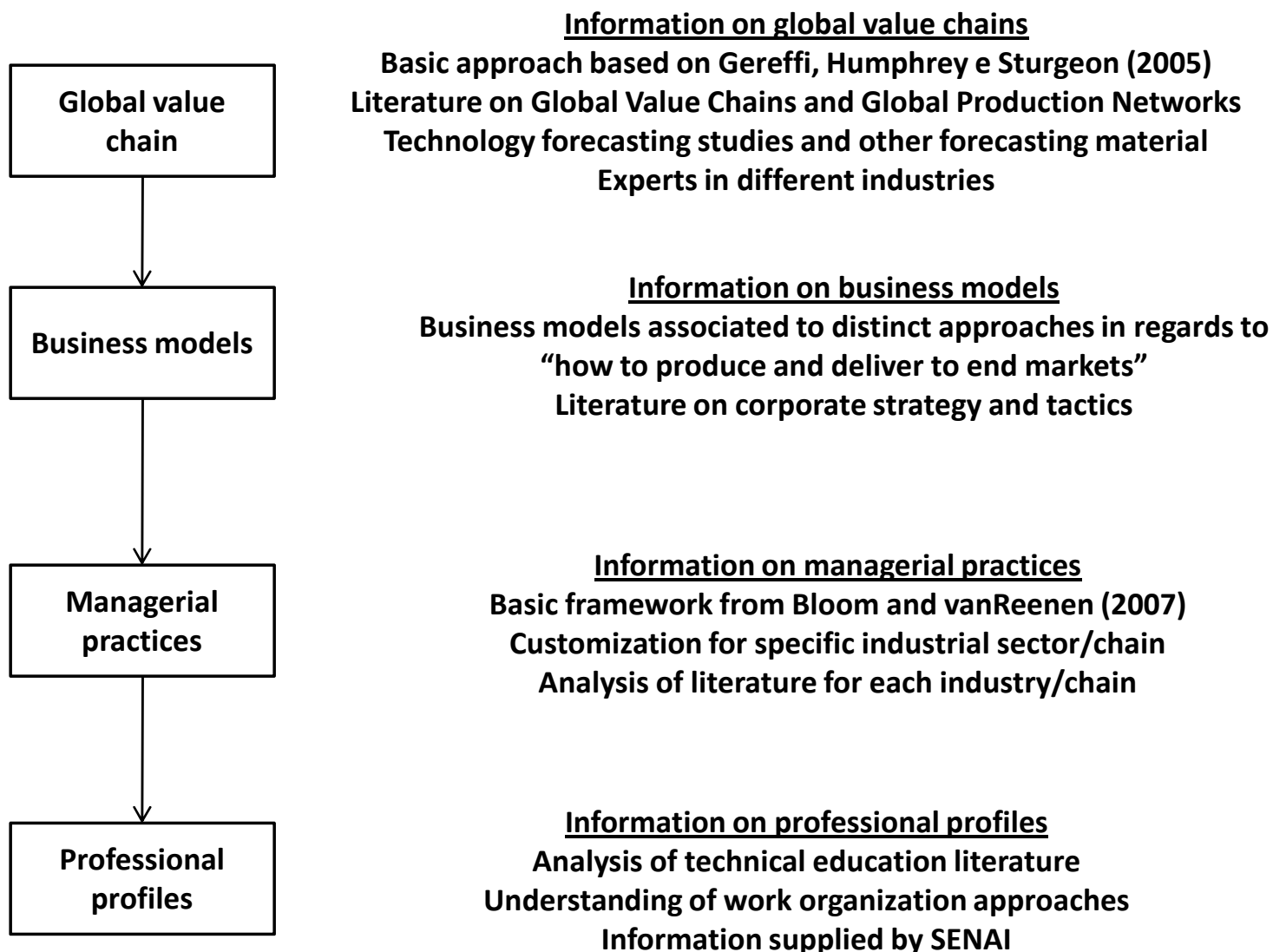
Organizational forecast (approach under development - 1)



Organizational forecast (approach under development - 2)



Sources of information for method deployment



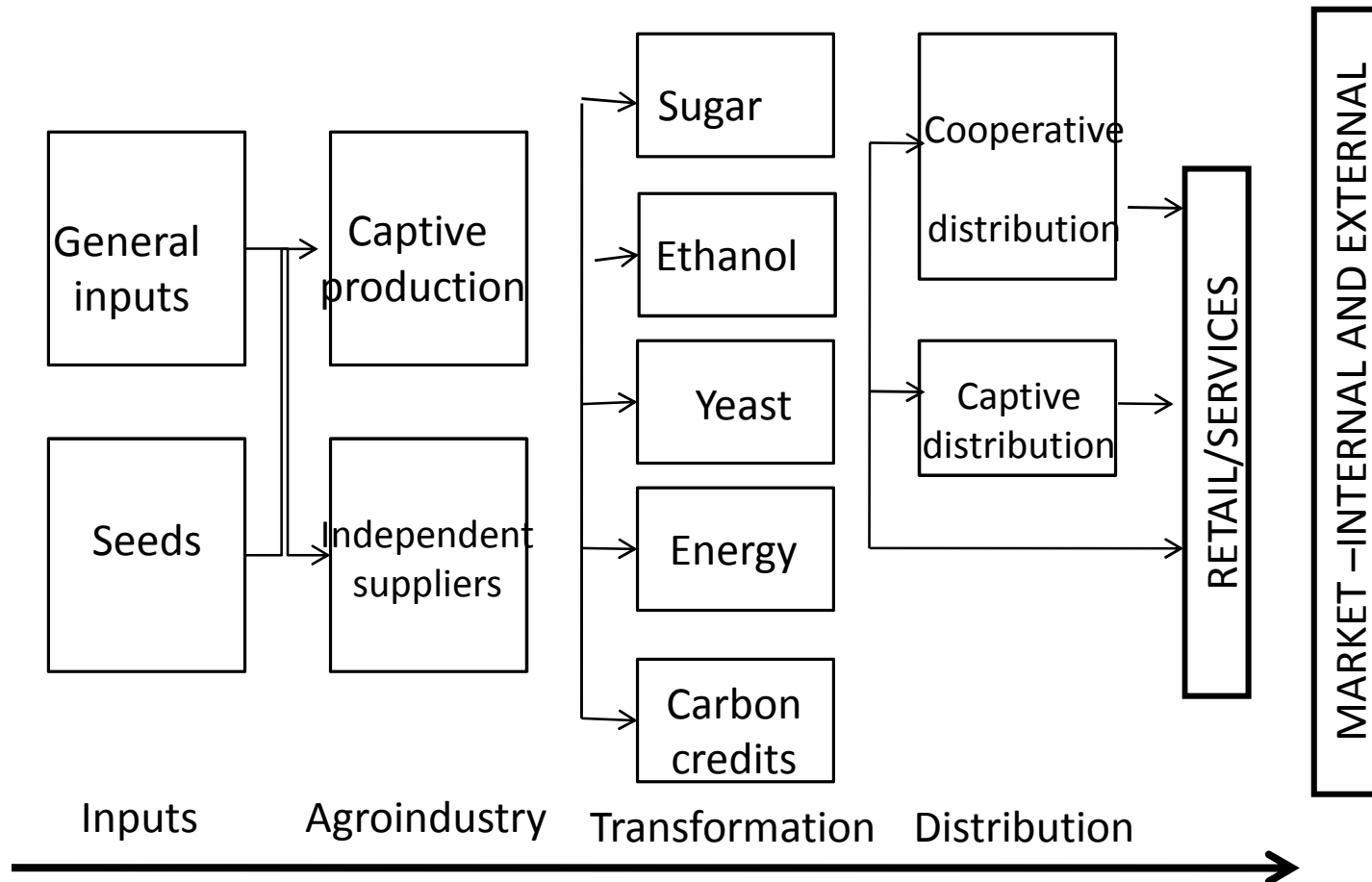
Work method

	Activity
1	Literature review: articles, sectoral analyses, media reports, forecasts, ...
2	First draft of the global value chain, governance and business models. Identification of the firms in which the targeted professional profile is employed
3	Discussion with sectoral specialist aiming at: <ul style="list-style-type: none"> ➤ Definitive value chain configuration ➤ Identification of leading firms in the distinct layers of the value chain ➤ Discussion about political, economic, technological and organizational trends ➤ Identification of the most relevant business models
4	Analysis of industry reports to describe the field
5	Visits to leading firms (role models) interviewing through semi-structured questionnaires
6	Adaptation of Bloom and vanReenen questionnaire to the specifics of the industrial sector. Establishment of key parameters for the interviews
7	Sample definition
8	Assembly and training of interviewers
9	Contacts with firms for scheduling
10	Interviews
11	Data analysis
12	Preparation of sectoral document: what are features of the targeted professional profile in the future and reasons

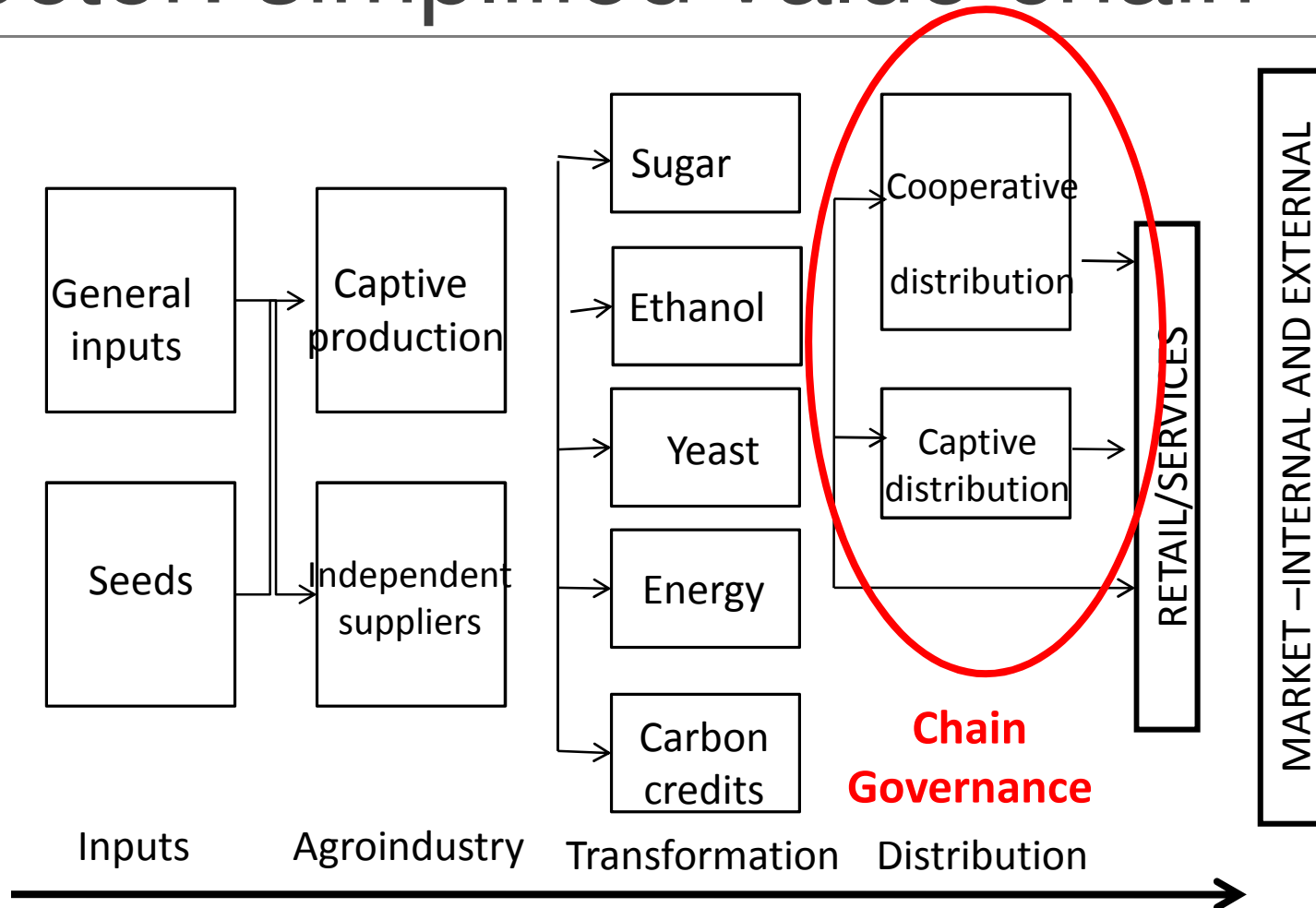
Example: Application of the organizational forecast to the sugar cane industry

(PRELIMINARY OUTCOMES)

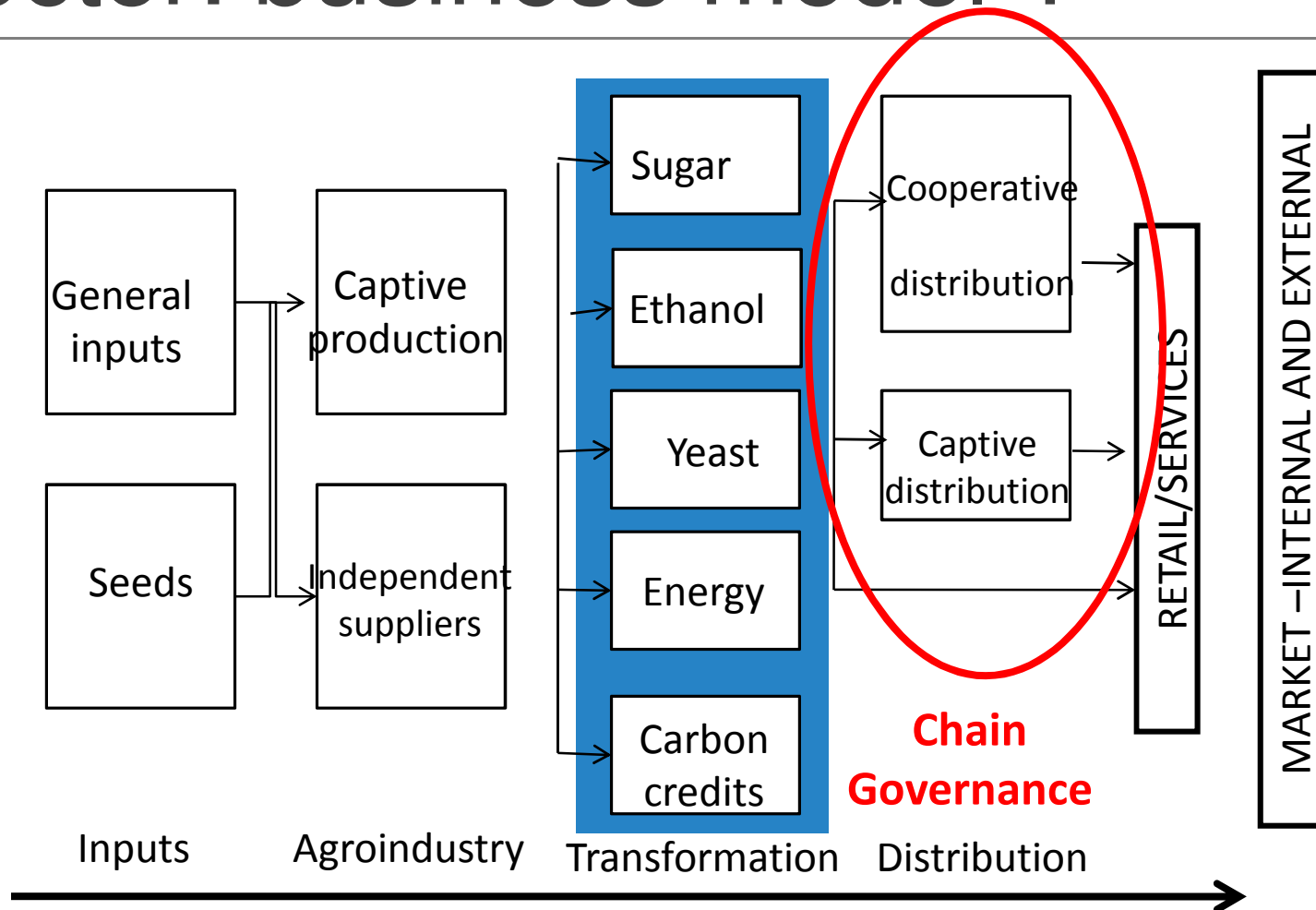
Sugar and ethanol industrial sector: simplified value chain



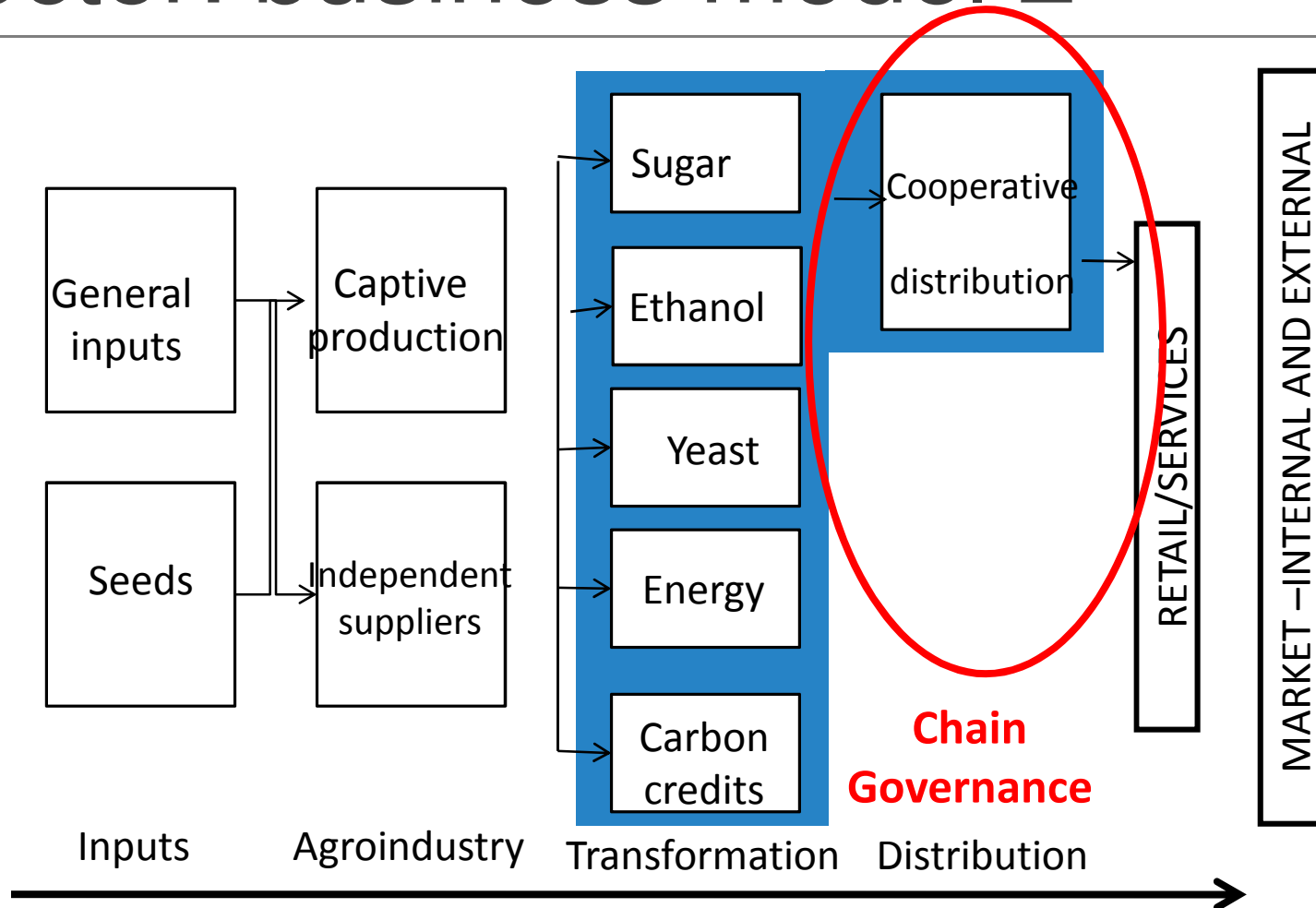
Sugar and ethanol industrial sector: simplified value chain



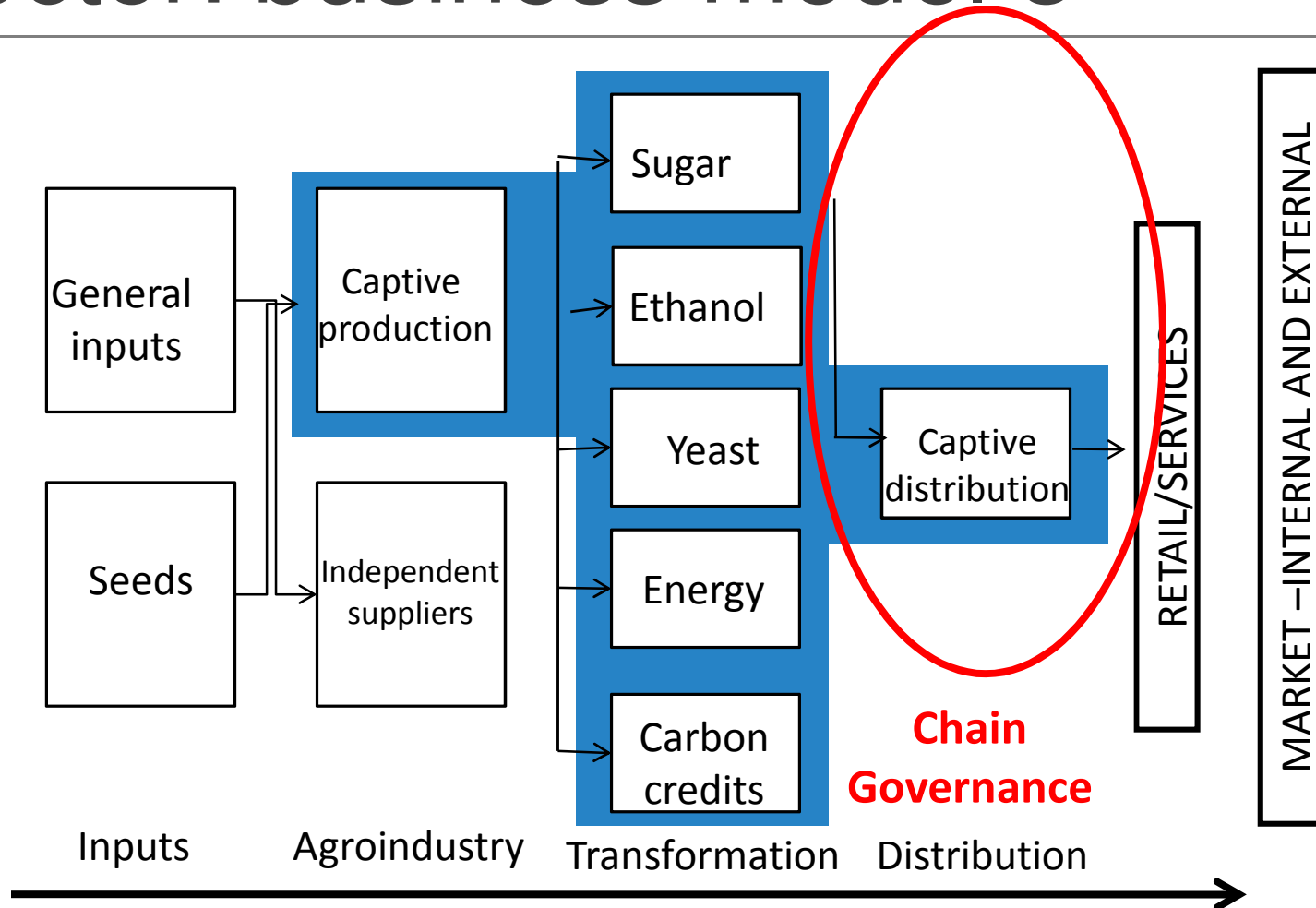
Sugar and ethanol industrial sector: business model 1



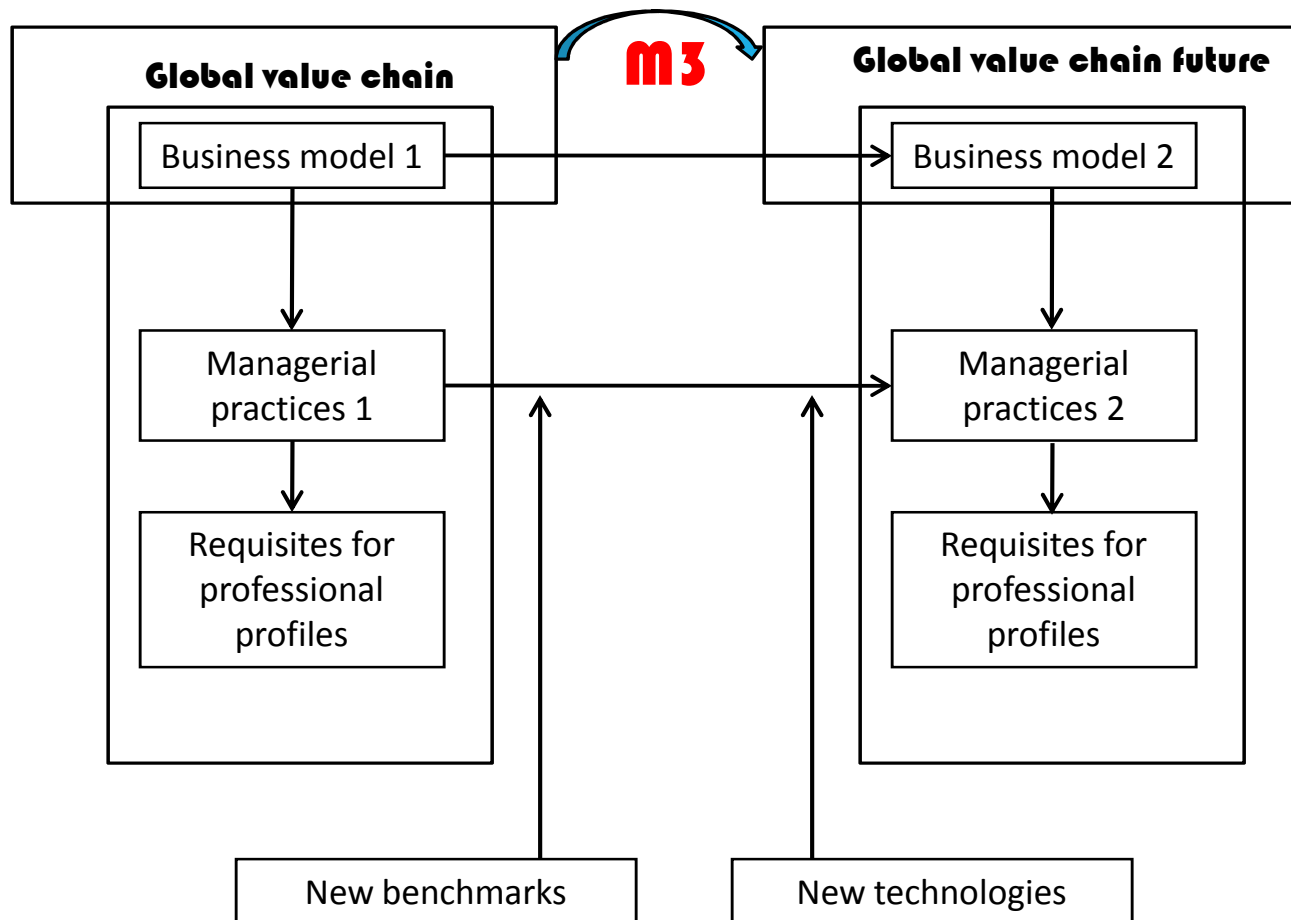
Sugar and ethanol industrial sector: business model 2



Sugar and ethanol industrial sector: business model 3



Forecasting requisites for professional profiles through the evolution of managerial practices



Managerial practices for professional profiles' requisites

Operations

HR and talent
management

Goals and target
setting

Performance
indicators and
monitoring

Sustainability

Technological and
managerial
innovation

Example: trends in Operations Management practices and impacts on professional profile in sugar cane industry

Practices trends	Impact on Professional Profiles (technical)	Impact on Professional Profile (behavioral)	Professional
Plant automation	<ul style="list-style-type: none"> • Visão integrada do processo produtivo • Leitura e interpretação de parâmetros de processo • Anticipation of operational problems • Capacidade de interpretação de causa e efeito • Noções básicas de manutenção 	<ul style="list-style-type: none"> • Visão sistêmica da cadeia de valor e do impacto das suas decisões • Compreensão dos fenômenos por trás dos indicadores e parâmetros do sistema (capacidade de abstração) • Relative autonomy for decision making • Iniciativa para agir dentro dos procedimentos aprovados • Capacidade para trabalho em grupo 	<ul style="list-style-type: none"> • Sugar and alcohol technician • Chemical technician
Use of planning and control software	<ul style="list-style-type: none"> • Conhecimento para manuseio dos pacotes adotados • Visão integrada do processo produtivo • Conhecimento das interfaces do software com o processo produtivo • Knowledge about the software key assumptions for modelling 	<ul style="list-style-type: none"> • Abstraction skills • Capacidade de análise crítica com base nas informações manipuladas • Visão sistêmica da cadeia de valor e do impacto das suas decisões • Compreensão das relações entre os horizontes de planejamento (curto, médio e longo prazos) 	<ul style="list-style-type: none"> • Sugar and alcohol technician • Chemical technician

Example: trends in Performance Measurement and Monitoring practices and impacts on professional profile in sugar cane industry

Practices trends	Impacts in Professional Profile (technical)	Impacts in Professional Profile (behavioral)	Profession
Performance monitoring and control	<ul style="list-style-type: none"> • Visão integrada do processo produtivo • Knowledge about metrics and KPIs • Conhecimento de ferramentas para análise de indicadores • Capacidade de interpretação de causa e efeito • Capacidade de planejar e implementar ações de melhoria e correção • Antecipação de problemas do sistema • Conhecimento das certificações e normas aplicáveis ao processo 	<ul style="list-style-type: none"> • Visão sistêmica da cadeia de valor e do impacto das suas decisões • Compreensão dos fenômenos por trás dos indicadores e parâmetros do sistema (capacidade de abstração) • Capacidade de análise crítica com base nas informações manipuladas • Compreensão das relações entre os horizontes de planejamento (curto, médio e longo prazos) • Mediation and negotiation skills • Visão de longo prazo 	<ul style="list-style-type: none"> • Sugar and alcohol technician • Chemical technician • Agro-industry technician
Consequence management	<ul style="list-style-type: none"> • Reconhecer a necessidade de ações corretivas • Mobilization for the implementation of corrective actions 	<ul style="list-style-type: none"> • Habilidade para intermediação e negociação • Commitment for the initiative to implement corrective actions 	<ul style="list-style-type: none"> • Sugar and alcohol technician • Chemical technician • Agro-industry technician

Thanks for your attention

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