Developing a skills planning mechanism in South Africa: a policy oriented research contribution

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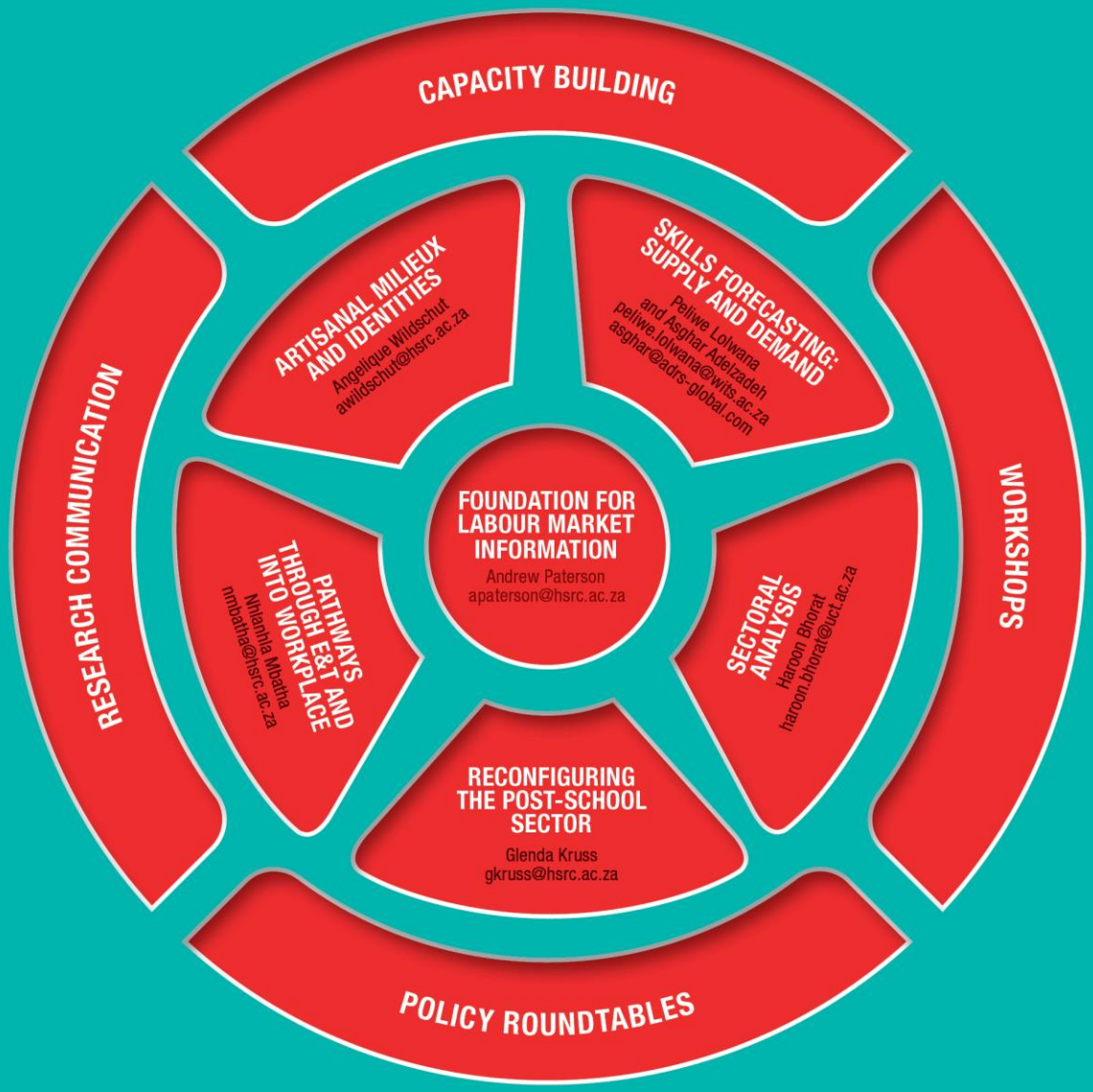
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POLICY ROUNDTABLES
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Aligning skills demand and supply: evidence from a case study of the sugar sectoral innovation system:

1. Macro-level analysis of actors and networks
2. Meso-level analysis of interactive capabilities of PSET organisations
3. Micro-level analysis of curriculum responsiveness and employability

The challenge

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How do we address skills gaps in South Africa to improve alignment between what the E&T system produces, and the needs of the public and private sectors?

How can industry and education organisations work together to produce relevant graduates at all skills levels?

We can try to create projections for skills needed in specific sectors…

But these projections have limited policy utility without also having an understanding of how organisations *interact* to match the supply of and demand for skills…

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1. Capability building processes in the sugar sectoral system of innovation in KwaZulu Natal

An innovation systems approach?

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- Framework builds on and informed by research on knowledge generation role of universities
  - institutional policies, structures and mechanisms that promote or constrain distinct forms of interaction, with their associated benefits for firms in a sector, and for universities
- What new kinds of questions and insights would be possible, if use innovation systems approach (Nelson, Lundvall, Lall, Von Tunzelman) to focus directly on skills development, and across the post-school system?
  - Alignment between knowledge, skills and capabilities for learning in firms, and those in the education and training sub-systems
  - Dynamic; historical trajectories and path dependence
  - Systems: interaction, mapping flows of knowledge and resources between actors, for learning and innovation
  - Identify mis/alignment in networks, gaps, missing organisations and blockages
- **Potential value** : provide a dynamic analysis of firms and their skills needs in relation to dynamic processes of technological upgrading, and of the interactive capabilities of education and training systems, which would enable us to move beyond static conceptions of supply and demand side matching

The research approach

Theoretical stance: **innovation systems approach / dynamic interactive capabilities**

- What are the main components in the **SSI** addressing skills needs?
- How do **firms** meet routine and non-routine skills needs?
- How do **public and private sector intermediary organisations** build network alignment and address misalignment in relation to skills development in the SSI?
- What are the interactive capabilities of the **E&T system** to address the dynamic skills needs of firms?
- What is the nature of mis/alignment between skills supply and demand in the SSI?
- What are the challenges/constraints/threats to growth and skills development in the SSI?

> Identify opportunities for improved interaction and system configuration

SKILLS DEMAND

CANE GROWERS
1. 25 200 Small-scale farmers
2. 1 570 Large scale growers (83.2% of crop)
3. 4 sugar cane growing companies

MILLERS IN KZN
1. Illovo Sugar (4)
2. Tongaat Hulett (4)
3. Tsb (1 in KZN, 2 Mpum)
4. Gledhow Sugar Company (PTY) (1)
5. Union Cooperative Limited (1)
6. Umfolozi (1)

MECHANISMS/STRATEGIES

Org linkages (knowledge & experience)

Resources (e.g. bursary programmes)

Skills movement (graduates, upskilling)

SKILLS SUPPLY

UNIVERSITIES
1. UKZN
2. U ZULULAND
3. MUT
4. DUT
5. Wits (Tongaat)
6. Pretoria
7. Stellenbosch

FET COLLEGES
1. Coastal
2. Elangeni
3. Esayidi
4. Majuba
5. Mnambithi
6. Mthashana
7. Thekwini
8. Umfolozi
9. Umgungundlovu

PRIVATE PROVIDERS
1. Shukela (STC)
2. AGB MATHE

AGRICULTURAL COLLEGES
1. Cedara College of Agriculture
2. Owen Sithole College of Agriculture

PUBLIC INTERMEDIARIES
1. Dep of Agri & Environ Affairs KZN
2. DAFF
3. DHET
4. AgriSeta
5. MerSeta

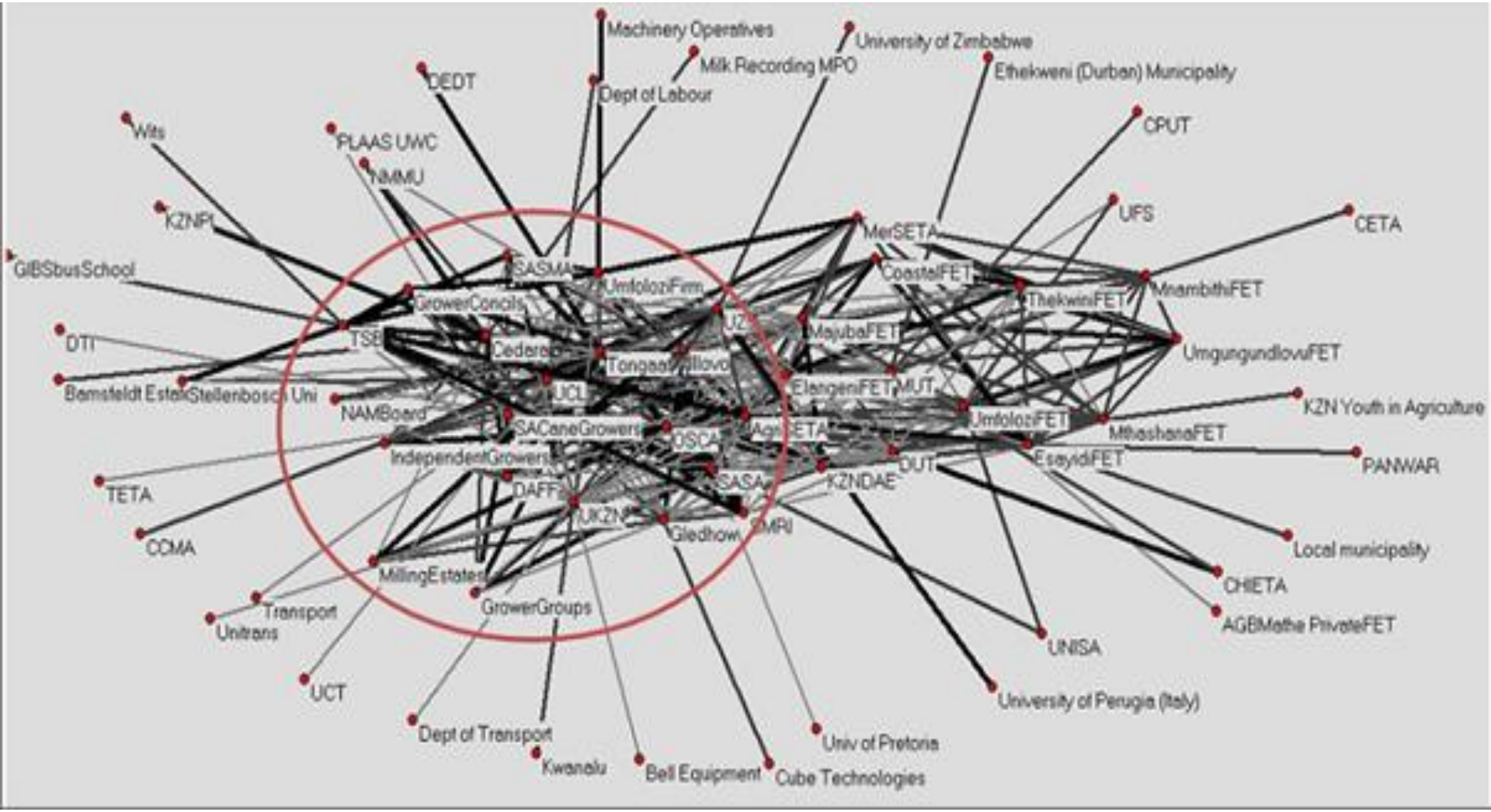
PRIVATE INTERMEDIARIES
1. SASA (incl. SASRI, Shukela)
2. SA Cane Growers Assoc
3. SA Sugar Millers' Assoc
4. SMRI

Interpreting & implementing policy

IPAP | NGP | NDP | **Policy** | Sugar Act | NSDS

Interpreting & implementing policy

Network mis/alignment



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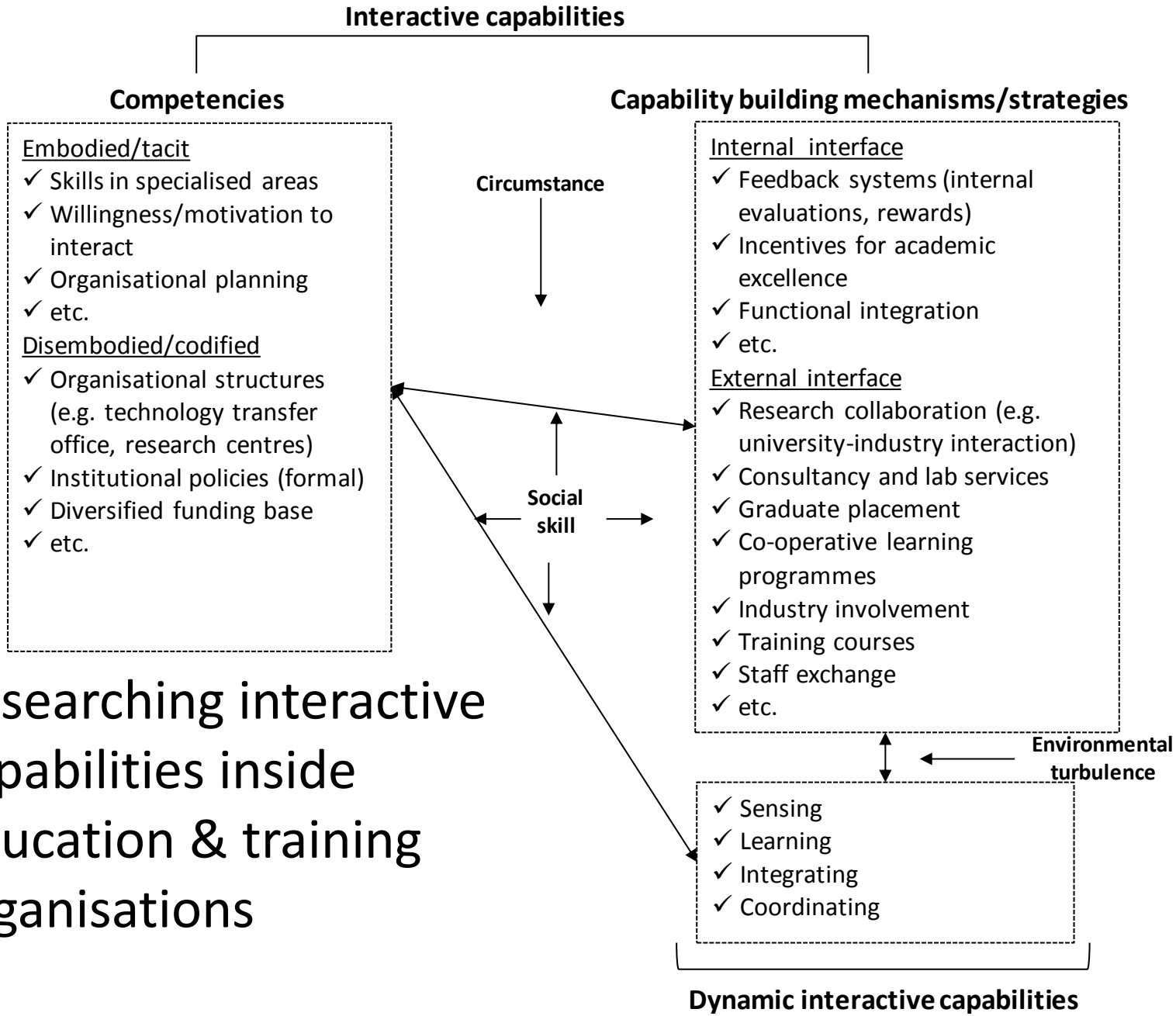
2. Interactive capabilities of PSET organisations system

CAPABILITY BUILDING PROCESSES: EDUCATION & TRAINING



Researching interactive capabilities inside education & training organisations

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Responsiveness and employability in the sugar training system

Employability and Capability

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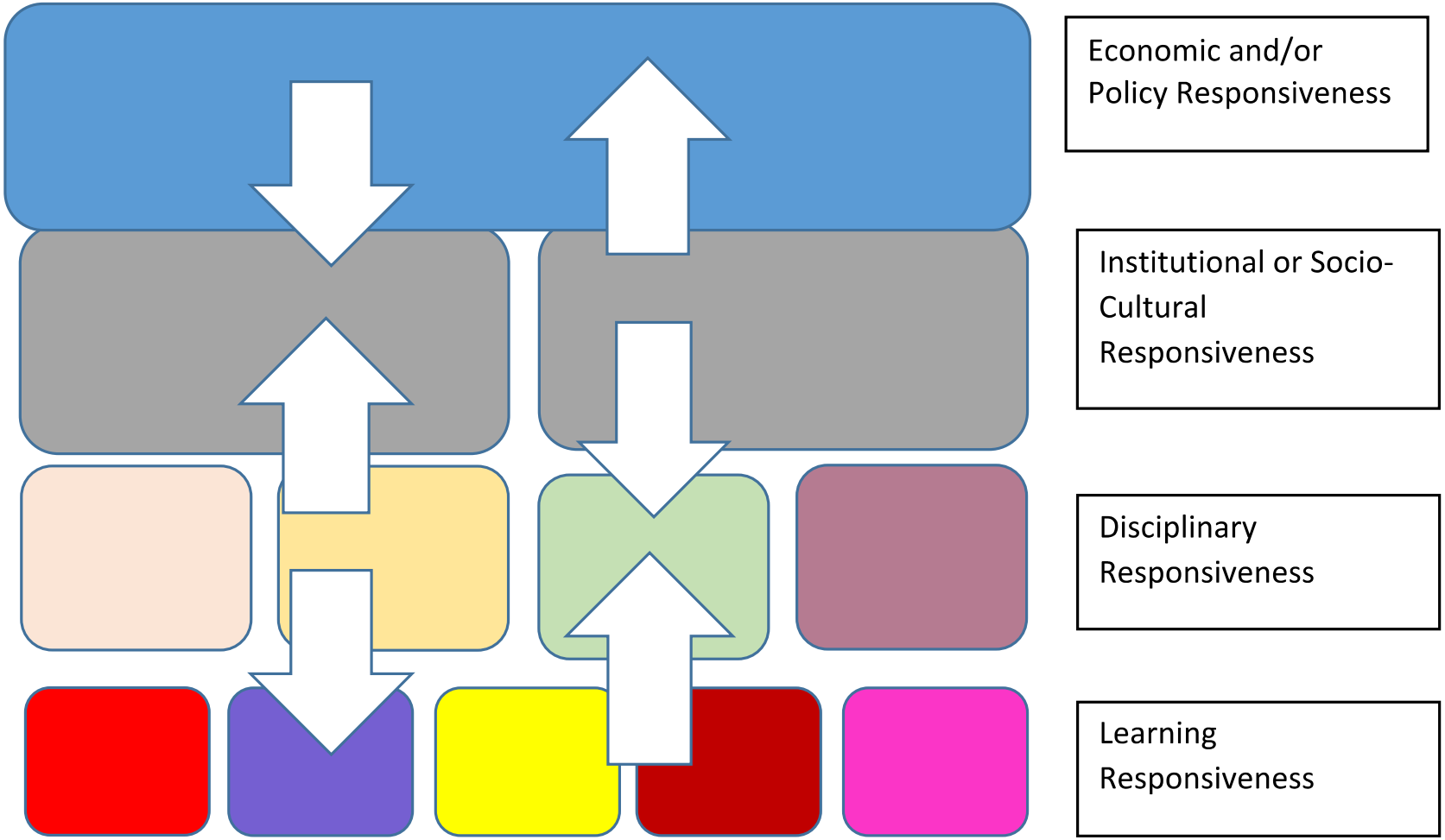
- *Well-being achievement*: this is an assessment of a person's state of being rather than the worth of what they might be doing. Different functionings or *sets of doings and beings* make up the set of evaluative criteria.
- *Agency achievement*: this is understood as an evaluation of the extent to which a person has succeeded or failed in attaining his or her goals. Here, the space of functionings available to a person is considered. An important variable in the set is a person's standard of living.
- *Well-being freedom:* This refers to the degree of freedom actualised in a person's ability to 'live well and be well' (Sen, 1993, p. 39).
- *Agency freedom* : The freedom to choose from a range of options.

Factors

- Policy
- Employer
- Social
- Institutional
- Individual

A Stratified model of curriculum responsiveness. Adapted from Moll



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Curriculum responsiveness is a concept that insists that we study all of its apparent dimensions – the economic, the socio-cultural, the programmatic, the individual – simultaneously. There can be no doubt that the various realities they refer to articulate with each other and constitute affordances and constraints for each other (Moll 2004 p. 8).

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- 7 case studies
- Some integrating dimensions
- Data
  - Employer, student and lecturer interviews
  - Transect walks through education sites
  - Document analysis

Sugar Training System

Entity	Course	Linkages	Comments
SASRI	Post-doc/PhD	Universities	Co supervision with SASRI scientists; access to research assistants; housing on campus
SASRI	Hons/Masters internship	Universities	1 year internship programme
SASRI	Junior and Senior Certificate	No formal recognition by SAQA	Non accredited programme providing basic introduction to all aspects of the farming process. Internationally sought after qualification
SASRI	Skills training	Department of Agriculture extension officers	Linked directly to the system of extension
STC	Skills training	Various companies and government agencies	
STC	Artisan training	SETAs	Various qualifications that lead toward the trade test

Economic and/or policy responsiveness

"We get told by the Department of Higher Education what to do, when to do, how to do. Obviously there's a tight interface between the operation, in other words, the training operation and the milling requirement, so if the curriculum says we need x, y and z and Mill says we need x, y and z , but we also need a, b and c, we will provide a, b and c within that curriculum, because that's what our customers want"

- Shukela Training Centre respondent

Disciplinary Responsiveness

"We do Electro-pneumatics. Electro-pneumatics has no reflection whatsoever in trade test it is not part of the curriculum towards trade test, but your Sugar Industry, all you Packaging Industries, all that, use electro-pneumatics, so it's something that's ended up in the course and it's been there for fifteen, sixteen, seventeen years, very popular, it stays within [11.18] course. We do it as part of our curriculum, because it was needs driven and it's in there"

Learning responsiveness

"From group to group learners are different. Um, you might get a group of learners that have… shall I put it this way, learners that have really taken on the trade, because they wanted, not because it's a job…. and you get another group that are very much prodders, (sic) um, they took on a job and whether it was electrician or fitter it doesn't matter, they took on a job and you've really got to push them to get through every module and the problem with that is sometimes they'll finish phase one and they'll pass it. But when they come back for phase two, you have this slight retention problem, because their interest is not as good as it was, so you've got to do a little bit of a refresher for people like that and you can move forward."

Cultural Responsiveness

"Ja, we, what happened is two years ago, the Industry realised that there is quite a lot of land reform … people who were getting land from restitution, and others who were coming from the land reform programme and they decided that to bring these in because these farmers have been producing sugar cane. So, we commissioned a study, got a consultant from outside, to look at the requirements … of these new clients … in terms of training needs and then looked at what the Industry was providing in terms of training support and then identifying the gaps and now we are at the beginning of implementing a project to bridge … those gaps so that we're providing the [51.36] because there are different clients from … the large scale growers in terms of need."

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Working across projects: Complexities in the policy research nexus

Tensions

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- Temporality and Policy processes
- Accountability
- Multi-level
- Multi-method
- Conceptual coherence

Research policy practice nexus

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- Understand economic dynamics and challenges in global context
- Analysis of skills development challenges across sectors at different levels
- Map of key post-school E&T, firm and intermediary actors and networks in specific sectors
- The strength of relationships and alignment in networks
- Policies, structures and mechanisms that work in practice as models to develop interactive capabilities
- Identifying practices in the cases that can be transferred
- Identify misalignment and gaps for intervention
- Identify areas for capability building within PSET organisations and the system as a whole

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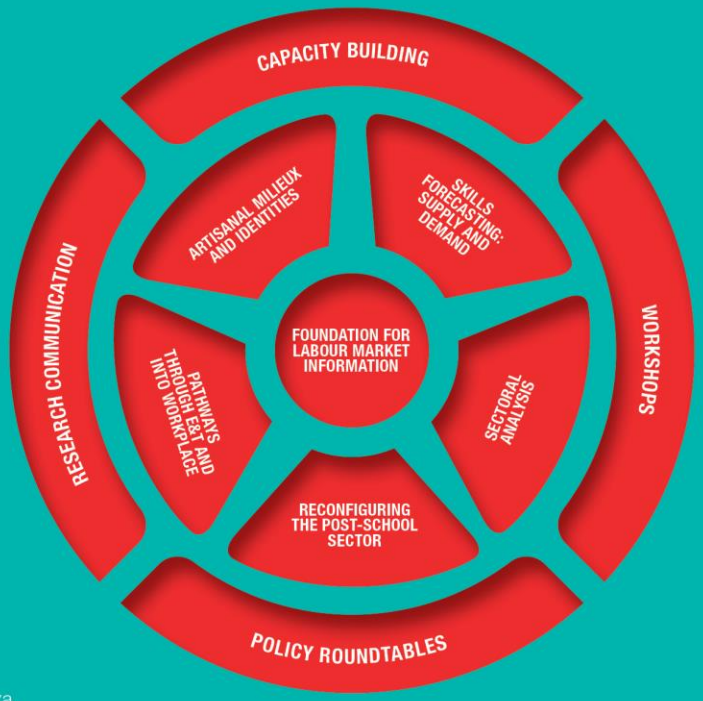

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