RIS3-PE

For a vision of the Smart Specialisation Strategy in selected innovative territories of the State of Pernambuco

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EU-CELAC COOPERATION ON TERRITORIAL COHESION - REGIONAL INNOVATION SYSTEMS IN THE STATE OF PERNAMBUCO (BRAZIL)

Final Report

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Document prepared by:
Hugo Pinto

Research assistants:
Carla Nogueira
Raphael D'Emery

Structure

Lista de Abreviaturas

ABDI - Agência Brasileira de Desenvolvimento Industrial

APL - Arranjo Produtivo Local

ASCES - Associação Caruaruense de Ensino Superior

BNDES - Banco Nacional de Desenvolvimento Econômico e Social

C&T – Ciência e Tecnologia

C&T+I - Ciência e Tecnologia e Inovação

CAPES – Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

CAU - Conselho de Arquitetura e Urbanismo

CESAR - Centro de Estudos e Sistemas Avançados do Recife

CES-UC - Centro de Estudos Sociais da Universidade de Coimbra

CGEE - Centro de Estudos Estratégicos e Gestão da Ciência, Tecnologia e Inovação

CGL - Comitê Gestor Local

CIS – Community Innovation Survey

CNI - Confederação Nacional da Indústria

CONCITEC - Conselho de Estado de Ciência de Tecnologia e Inovação

CREA - Conselho Regional de Engenharia e Agronomia de Pernambuco

CTTU - Companhia de Trânsito e Transporte

DG Regio – Direção Geral de Política Regional e Urbana da Comissão Europeia

ECT&I-PE - Estratégia de Ciência, Tecnologia e Inovação 2017-2022

EDP - Entrepreneurial Discovery Process

EU-CELAC – European Union - Community of Latin American and Caribbean States

FACEPE - Fundação de Amparo à Ciência e Tecnologia de Pernambuco

FCA - Fiat Chrysler Automobiles

FINEP - Financiadora de Estudos e Projetos

FITec – Inovações Tecnológicas

GDLS - Mestrado em Gestão do Desenvolvimento Local Sustentável

IBGE - Instituto Brasileiro de Geografia e Estatística

IBICT - Instituto Brasileiro de Informação em Ciência e Tecnologia

ICT – Information and Communication Technology

INPI - Instituto Nacional da Propriedade Industrial

IPTS-JRC - Joint Research Centre da Comissão Europeia

IT – Information Technologies

ITEMM - Instituto de Tecnologia Edson Mororó Moura

ITEP - Instituto de Tecnologia de Pernambuco

MDU - Programa de Pós-graduação em Desenvolvimento Urbano

MI - Ministério da Integração Nacional

P&D – Pesquisa e Desenvolvimento

PDE – Processo de Descoberta Empreendedora

PINTEC - Pesquisa de Inovação e Tecnologia

PRO – Public Research Organisations

RH – Recursos Humanos

RIS3 – Estratégias de Especialização Inteligente

RIS3-PE – Estratégia de Especialização Inteligente de Pernambuco

RMR – Região Metropolitana do Recife

S&T – Science and Technology

S&T+I - Science and Technology and Innovation

SEBRAE - Serviço Brasileiro de Apoio às Micro e Pequenas Empresas

SECTI-PE - Secretaria de Ciência, Tecnologia e Inovação do Estado de Pernambuco

SEGOV - Secretaria do Governo da Presidência da República

SENAI – Serviço Nacional de Aprendizagem Industrial

SPIn – Sistema Pernambucano de Inovação

STI – Sistema Territorial de Inovação

TCU - Tribunal de Contas da União

TI – Tecnologias de Informação

TIC – Tecnologias de Informação e Comunicação

TIS – Territorial Innovation System

UFPE – Universidade Federal de Pernambuco

UFRPE - Universidade Federal Rural de Pernambuco

UNIFAVIP - Centro Universitário DeVry Unifavip em Caruaru

UPE - Universidade de Pernambuco

Executive Summary

Smart Specialisation Strategies: For what?

The experience of the implementation of Smart Specialisation Strategies (RIS3) in the different Member-States of the European Union is quite diverse but shows that the concentration of resources and the encouragement of innovation actors to delineate specific priorities, defined through entrepreneurial discovery, can produce relevant results, stimulating value chains that generate greater added value.

Smart specialisation can be an important catalyst for regional development. It can be achieved spontaneously, but such a situation is unlikely and uncertain. To gain control over the process of structural change, preparing and implementing RIS3 is probably more effective than leaving the future of the region to chance. Smart specialisation strategies adopt a systemic view of regional innovation to structure policy formulation. The existence of an innovation system assumes that different actors play diverse roles in the system, which are interconnected by different types of linkages, share a common goal of developing innovative activities and thereby promote regional development. RIS3 points to an effective use of the potential in the region for its development, through a combination of policies involving investments in infrastructures and in soft capital, such as support for internationalisation and collaborative activities. It is based on several stages, from developing a vision, identifying competitive advantages, to defining strategic priorities and implementing policies to promote the potential of development based on Science and Technology and Innovation (S&T+I).

The main novelty in the formulation of RIS3 is the process of entrepreneurial discovery (EDP). This process directly considers the discovery of new areas that can transform the region. It is a process that it is always present in the evolution of territories. The difference in RIS3 is that the EDP is assumed as part of the strategy, a targeted process, attempting to instigate the combination of bottom-up approaches and the involvement of stakeholders in policymaking with more directive regional governments and public administration.

The RIS3-PE Project

The development of a smart specialisation strategy is a complex process involving several phases. In the first steps it is essential to gather solid evidence on the dynamics of the innovation system and on the behaviour of actors in order to contribute to the definition of relevant innovation policies adapted to the needs and the existing territorial context. This report summarises a set of results achieved in 2017 in the project EU-CELAC Cooperation on Territorial Cohesion for Regional Innovation Systems in the State of Pernambuco (Brazil), funded by the European

Commission DG Regio. In addition to promoting the development of a RIS3 in Pernambuco – the so-called RIS3-PE - this project, often referred to as Phase 2, had the parallel objective of highlighting crucial aspects for the transfer of the rationale of smart specialisation into the formulation of Brazilian regional policy. This Phase 2 essentially sought to structure a broader evidence base. For this the project was divided into eight specific tasks:

- Task 1 - Alignment of principles and methodologies
- Task 2 - Governance model
- Task 3 - Evaluation of the resources of the Pernambuco Innovation System in terms of S&T+I
- Task 4 - Profile of innovation and potential needs (Clothing)
- Task 5 - Profile of innovation and potential needs (Automotive-IT)
- Task 6 - Synthesis report
- Task 7 - Presentation
- Task 8 - A vision for the Smart Specialisation Strategy in Pernambuco

In this project, special attention was given to two territorial innovation systems (TIS), Clothing and Automotive-IT. These domains were selected during phase 1, which took place in 2015, to serve as pilot examples, to demonstrate and adapt the RIS3 approach to the Brazilian context, through the understanding of appropriate forms of multilevel governance and the selection of priority actions for implementation.

Main results

Pernambuco has been developing a set of very relevant innovation support actions in recent years. In 2017 through SECTI-PE, the State has prepared several initiatives within the recently developed Science, Technology and Innovation Strategy 2017-2022, with the objective of developing and strengthening the Pernambuco Innovation System (SPIn). SPIn is a relatively consolidated innovation system in terms of strategic actors, with a significant number of innovative companies, universities, S&T institutes, laboratory infrastructures, governance bodies, innovation habitats, incubators and accelerators, but with regional deficits in the linkages among them.

The RIS3-PE project (Phase 2) has developed several studies. One of these studies was based on secondary information to present a comparative analysis of national and international cases with the Pernambuco case. Another report, based on a set of interviews with key stakeholders of the SPIn, carried out a content analysis, underlining dominant perspectives on the strengths, weaknesses, opportunities, threats, policies and measures needed to strengthen innovation. A third study analysed the knowledge and innovation needs of Clothing and Automotive-IT companies. There were several events within the scope of the project, in particular, an opening conference (Recife in March) and a closing conference (Brasilia in November). Of note is the realisation of

two entrepreneurial discovery workshops. The main objective was to generate suggestions on priorities and ideas-partnerships for RIS3-PE. These workshops were held in July 2017 (Clothing, Caruaru and Automotive-IT, Recife). The Clothing group prioritised 6 ideas-partnerships: e-commerce development, shared governance model, process quality assurance and efficient use of inputs, knowledge generation and training of human resources, construction of an eco-power plant for Clothing and Laundry, Centre for collaborative innovation. The Automotive-IT group prioritised 7 ideas-partnerships: Multidisciplinary environment for developing solutions for connected and sustainable vehicles, Urban space for experimentation, Shared battery (service), Assistive technology, Electrification of transports, Positive displacement, Integration between public sector and firms, universities, research centres, financial and development institutions. These ideas-partnerships can be mobilised for subsequent phases of RIS3-PE.

Conclusive Notes

The initial formulation of a RIS3 needs an in-depth process of evidence generation to assist in policy design - it is critical to prepare studies on the dynamics of innovation and events for entrepreneurial discovery. The tropicalisation of the RIS3 framework has several limits to which it is important to respond so the implementation of this type of strategies can be successful. A crucial limit is that, contrary to what happened in the European case, there is no continental cross-cutting instrument in Brazil such as the Cohesion Policy, which allows large-scale financing of interventions in the selected priorities of smart specialisation, nor does it attribute to the preparation of a smart specialisation strategy a conditionality character of access to public funds. The present project was a contribution to produce a base of evidence to support the definition of policies, to promote methodologies and experimental events for the entrepreneurial discovery, and finally to help to understand the potential of tropicalisation of smart specialisation strategies. The different types of evidence collected - with on-site visits, interviews, questionnaires, entrepreneurship discovery workshops – provided consistent insights, facilitating the preparation of a short list of recommendations that can be followed to facilitate the deepening of RIS3-PE. These principles may be relevant and transferable to other Brazilian States.

Contextual Recommendations (beyond the scope of RIS3 intervention):

- Structure the conditions for government initiatives to transcend the political cycles of the administration that created them.
- Formulate solutions for the improvement of water management.
- Increase public security
- Develop mobility with new transport networks.
- Reduce the fiscal burden at all levels, as well as reduce the bureaucracy of the public machine.

Recommendations for SPIn:

- Define a collective shared vision on the future of the State
- Select a more limited number S&T+I priority domains.
- Create an animator (or reinforce this function within the system) for the promotion of innovation at the State level.
- Promote the articulation and cooperation of the actors of innovation in the different territorial systems of innovation and at the State level.
- Encourage a permanent process of participatory governance, involving universities, government, companies and society.
- Stimulate the culture of innovation in university entrepreneurs and researchers.
- Prepare higher education graduates for the needs of the market by structuring offers related to emerging technological areas.
- Propose an Innovation Pact involving the State Government and the various actors of the Innovation System of Pernambuco.

Specific Recommendations to Facilitate the Implementation of RIS3:

- Measures to connect RIS3 framework with ongoing policies and mechanisms.
- Increased support and extra evaluation to proposals linked to ideas-partnerships identified in RIS3.
- Specific announcements for projects related to priorities identified in RIS3-PE.
- Launching sectoral forums and other governance mechanisms planned for RIS3-PE.

In short, smart specialisation can be an interesting framework to reflect on the future of regional policy and innovation in Brazil. Implementing a RIS3 is only a path. It is expected that some of the suggestions and ideas generated in Phase 2 of RIS3-PE may be relevant to the design of a true smart specialisation strategy in Pernambuco and to stimulate a new public policy paradigm in Brazil.

Sumário Executivo

Estratégias de Especialização Inteligente: Para quê?

A experiência da implementação de estratégias de especialização inteligente (RIS3) nos diferentes Estados-Membros da União Europeia é bastante diversificada, mas mostra que a concentração de recursos e o incentivo aos atores de inovação para a delimitação de prioridades específicas, definidas através de processos de descoberta empreendedora, podem produzir resultados relevantes, estimulando cadeias de valor que geram maior valor agregado.

A especialização inteligente pode ser um importante catalisador para o desenvolvimento regional. Pode ser alcançada espontaneamente, mas tal situação é improvável e incerta. Para obter controle sobre o processo de mudança estrutural, preparar e implementar uma RIS3 provavelmente é mais eficaz do que deixar o futuro da região ao acaso. As estratégias de especialização inteligente adotam uma visão sistêmica da inovação regional para estruturar a formulação de políticas. A existência de um sistema de inovação baseia-se no pressuposto de que diversos atores desempenham diferentes funções no sistema, que estão interligados por diferentes tipos de conexão, partilham um objetivo comum de desenvolver atividades inovadoras e por esta via promover o desenvolvimento regional. As RIS3 apontam para um uso efetivo do potencial na região, para o seu desenvolvimento, através de uma combinação de políticas que envolvam investimentos em infraestruturas e em *soft capital*, como suporte à internacionalização e a atividades colaborativas. Baseia-se em várias etapas de desenvolvimento de uma visão, identificando vantagens competitivas, definindo prioridades estratégicas e implementando políticas para promover o potencial de desenvolvimento baseado em Ciência e Tecnologia e Inovação (C&T+I).

A principal novidade na formulação das RIS3 é o processo de descoberta empreendedora (PDE). Este processo considera diretamente a descoberta de novas áreas que podem transformar a região. É um processo que está sempre presente na evolução dos territórios. A diferença nas RIS3 é que o PDE é assumido como parte da estratégia, um processo direcionado, tentando instigar a combinação de abordagens de baixo para cima com o envolvimento de atores-estratégicos interessados na formulação de políticas e na governança e uma atuação mais diretiva dos governos regionais e da administração pública.

O Projeto RIS3-PE

A elaboração de uma estratégia de especialização inteligente é um processo complexo e que envolve várias fases. Nos primeiros passos é fundamental recolher-se uma evidência sólida sobre as dinâmicas do sistema de inovação e os comportamentos dos atores de modo a contribuir para a definição de políticas de inovação relevantes e adaptadas às necessidades e ao contexto

territorial existente. Este relatório sintetiza um conjunto de resultados alcançados em 2017 no projeto Cooperação UE-CELAC sobre Coesão Territorial para Sistemas Regionais de Inovação no Estado de Pernambuco (Brasil), financiado pela Comissão Europeia DG Regio. Para além de favorecer o desenvolvimento de uma RIS3 em Pernambuco – a RIS3-PE - este projeto, designado muitas vezes como fase 2, teve o objetivo paralelo de destacar aspetos cruciais para a transferência da lógica de especialização inteligente para a formulação de políticas regionais brasileiras. Esta fase 2 procurou essencialmente estruturar uma base de evidências mais alargada. Para tal o projeto dividiu-se em oito tarefas específicas:

- Tarefa 1 - Alinhamento de princípios e metodologias
- Tarefa 2 - Modelo de governança
- Tarefa 3 - Avaliação dos recursos do Sistema Pernambucano de Inovação em termos de C&T+I
- Tarefa 4 - Perfil de necessidades de inovação e potencial (Confecções)
- Tarefa 5 - Perfil de necessidades de inovação e potencial (Automotivo-TI)
- Tarefa 6 - Relatório de síntese
- Tarefa 7 – Apresentação
- Tarefa 8 - Uma visão para a Estratégia de Especialização Inteligente em Pernambuco

Neste projeto foi dada especial atenção a dois sistemas territoriais de inovação (STI), Confecções e Automotivo-TI. Estes domínios foram selecionados na Fase 1, que decorreu em 2015, para servirem como exemplos-piloto, demonstrar e adaptar a abordagem RIS3 ao contexto brasileiro, em particular através da compreensão de formas apropriadas de governança multinível e de seleção de ações prioritárias para implementação.

Principais Resultados

Pernambuco tem vindo a desenvolver um conjunto de ações de apoio à inovação muito relevantes nos últimos anos. Em 2017 através da SECTI-PE, o Estado está a desenvolver várias iniciativas enquadradas na Estratégia de Ciência, Tecnologia e Inovação 2017-2022 (ECT&I-PE) recentemente desenvolvida com o objetivo de desenvolver e fortalecer o Sistema Pernambucano de Inovação (SPIn). O SPIn é um sistema de inovação relativamente consolidado em termos de atores-estratégicos, possuindo número relevante de empresas inovadoras, universidades, institutos de C&T, infraestruturas laboratoriais, órgãos de governança, habitats de inovação, incubadoras e aceleradoras. Mas com défices reconhecidos nas ligações entre estes mesmos atores.

O projeto RIS3-PE (fase 2) desenvolveu vários estudos. Um desses estudos baseou-se em informação secundária para apresentar uma análise comparativa de casos nacionais e internacionais com o caso pernambucano. Outro *report*, partindo de um conjunto de entrevistas a atores-chave do SPIn efetuou uma análise de conteúdo, permitindo sublinhar perspetivas

dominantes sobre forças, fraquezas, oportunidades, ameaças, políticas e medidas necessárias para o fortalecimento da inovação. Um terceiro estudo analisou as necessidades de conhecimento e inovação de empresas de Confecções e Automotivo-TI.

Realizaram-se vários eventos no âmbito do projeto, em particular eventos de abertura (Recife em março) e de encerramento (Brasília em novembro). De destacar a realização de duas oficinas para a descoberta empreendedora. O principal objetivo foi gerar sugestões sobre prioridades e ideias-parcerias para a RIS3-PE. Essas oficinas foram realizadas em julho de 2017 (Confecções, Caruaru e Automotivo-TI, Recife). O grupo de Confecções priorizou 6 ideias-parcerias: Desenvolvimento de *e-commerce*, Modelo de governança compartilhada, Garantia na qualidade dos processos e uso eficiente de insumos, Geração de conhecimento e formação de recursos humanos, Construção de uma eco usina de Confecções e lavandaria, Centro de inovação colaborativa. O grupo de Automotivo-TI priorizou 7 ideias-parcerias: Ambiente multidisciplinar para desenvolvimento de soluções para veículos conectados e sustentáveis, Espaço urbano para experimentação veicular, Bateria compartilhada (serviço), Tecnologia assistiva, Eletrificação, Deslocamento positivo, Integração entre setor público, empresas, universidades, centros de pesquisa, instituições financeiras e de fomento. Estas ideias-parcerias podem ser mobilizadas para desenvolvimento em fases subsequentes da RIS3-PE.

Notas de Conclusão

A formulação inicial de uma RIS3 precisa de um processo aprofundado de geração de evidências para auxiliar na reflexão sobre o desenho das políticas – é fundamental preparar estudos sobre a dinâmica de inovação e eventos para a descoberta empreendedora. A tropicalização do referencial RIS3 tem vários limites a que é importante dar resposta para que a implementação de estratégias deste tipo possa ser bem sucedida. Um limite crucial é que, ao contrário do que se passou no caso europeu, não existe no Brasil nenhum instrumento transversal continental como a Política de Coesão que permita financiar a larga escala intervenções nas prioridades selecionadas de especialização inteligente nem tão pouco atribuir à preparação de uma estratégia de especialização inteligente um caráter de condicionalidade de acesso a fundos públicos.

O presente projeto foi um contributo para produzir uma base de evidências para apoiar a definição de políticas, promover metodologias e eventos experimentais para a descoberta empreendedora e, finalmente, ajudar a compreender o potencial da tropicalização de estratégias de especialização inteligente. Os diferentes tipos de evidências coletadas - com visitas *in loco*, entrevistas, questionários, oficinas de descoberta empreendedora – forneceram pistas de atuação consistentes, facilitando a elaboração de uma pequena lista de recomendações que podem ser seguidas para o aprofundamento da RIS3-PE. Esses princípios podem ser relevantes e transferíveis para outros estados brasileiros.

Recomendações de Contexto (para além do escopo de intervenções da RIS3):

- Estruturar condições para que iniciativas governamentais transcendam os ciclos políticos da administração que os criou.
- Formular soluções para a melhoria da gestão da água.
- Aumentar a segurança pública.
- Desenvolver mobilidade com novas redes de transporte.
- Reduzir a carga tributária em todos os níveis, bem como reduzir a burocracia da máquina pública.

Recomendações para o SPIn:

- Definir uma visão compartilhada coletiva sobre o futuro do Estado.
- Selecionar um número mais limitado de domínios de C&T+I prioritários.
- Criar um animador (ou reforçar esta função dentro do sistema) para a promoção da inovação no nível estadual.
- Promover a articulação e cooperação dos atores da inovação nos diferentes sistemas territoriais de inovação e ao nível estadual.
- Incentivar um processo permanente de governança participativa, envolvendo universidade, governo, empresas e sociedade.
- Estimular a cultura da inovação em empreendedores e pesquisadores universitários.
- Preparar estudantes de ensino superior para as necessidades do mercado através da estruturação de ofertas relacionadas a áreas tecnológicas emergentes.
- Propor um Pacto de Inovação que envolve o Governo do Estado e os diversos atores do Sistema Pernambucano de Inovação.

Recomendações Específicas para Facilitar a Aplicação da RIS3:

- Medidas para conectar referencial RIS3 com políticas e mecanismos em curso.
- Majoração de apoios e valorização extra de propostas ligadas a "ideas-parcerias" identificadas na RIS3.
- Editais específicos para projetos relacionados com prioridades identificadas na RIS3-PE.
- Lançamento do modelo dos fóruns sectoriais e outros mecanismos de governança previstos para a RIS3-PE.

Em suma, a especialização inteligente pode ser um enquadramento interessante para refletir sobre o futuro da política regional e de inovação no Brasil. A implementação de uma RIS3 é um caminho. Espera-se que algumas das reflexões e das ideias geradas na fase 2 da RIS3-PE possam ser relevantes para o desenho de uma verdadeira estratégia de especialização inteligente em Pernambuco e estimularem um novo paradigma para a definição de políticas públicas no Brasil.

1
Introduction

The Centre for Social Studies of the University of Coimbra (CES-UC) obtained the contract to develop the project related to Phase 2 of RIS3-PE - Smart specialisation strategy in selected innovative territories of the State of Pernambuco. The contract is financed by DGREGIO - Directorate-General for Regional Policy of the European Commission (Tender No. 2016 EC160AT045 EU-CELAC Cooperation on Territorial Cohesion - Regional Innovation Systems in the State of Pernambuco - Brazil).

The present project is one of the first attempts to apply the theoretical-methodological rationale of the Research and Innovation Strategies for Smart Specialisation (RIS3) in the preparation of a strategy outside the European context, in this case in Pernambuco (Brazil).

The learning resulting from the development and implementation of RIS3 in Europe is of great interest to a country like Brazil, it opens up a great field for economic development partnerships and can be a catalyst for the National Policy on Regional Development. The State of Pernambuco, in the Northeast region of Brazil, is currently developing and implementing its Science, Technology and Innovation Strategy 2017-2022 (ECT&I) (SECTI, 2017). The design of a strategy that incorporates the principles of 'smart specialisation' can be useful for promoting innovative dynamics, especially if framed and based on the results of a careful evaluation of the existing territorial potential.

This document incorporates the final report summarising the main results achieved with the variety of activities implemented in the project in 2017, often referred to as RIS3-PE - Phase 2.

The document is organised as follows. Part 2 explains the basics of smart specialisation concept and policy. Part 3 briefly presents the case of Pernambuco, in particular, introducing some fundamental aspects to the dynamics of the Pernambuco Innovation System (SPIn). Part 4 presents the most relevant achievements and results of Phase 2. Part 5 concludes with some lessons and preliminary suggestions for initiatives to promote smart specialisation in Pernambuco.

2
Smart Specialisation Strategies: Challenges for Brazil

The implementation of an innovation strategy anchored in the principles of smart specialisation can be an important catalyst for regional development (Foray, David, & Hall, 2011). Smart specialisation refers to the economic structure based on a selection of domains where the region can excel in comparison to other territories. These domains are considered strategic for development, factors of structural change in the region. They are territorially embedded domains and simultaneously inserted in global value chains, conveniently matching the local knowledge base with market opportunities.

Smart specialisation can be achieved spontaneously, but such a situation is unlikely and uncertain. To gain control over the structural change process, preparing and implementing a Smart Specialisation Strategy (RIS3) is probably more effective than leaving the future of the region at random. Smart specialisation strategies adopt a systemic view of regional innovation (Cooke, 1998) to structure policy formulation sustainably. The existence of a system of innovation is based on the assumption that different actors play different roles in the system, which are linked by different types of linkages and share a common goal of developing innovative activities and thereby promoting development. RIS3 attempts to point to an effective use of the potential in the region for its development through a combination of policies involving infrastructure investment and soft capital as support for internationalisation and collaborative activities among a wide variety of innovation actors (Foray, 2015). The vision of a quadruple helix is commonly assumed to be a structuring dimension of RIS3, suggesting the relevance of the university and other public research organisations (PROs), of public government agencies at different levels, of the business fabric, but also of users and other S&T+I - Science and Technology and Innovation policies, both for regional innovation dynamics and for the system's own governance.

A true RIS3 needs to be considered as a continuous and unfinished process to guide the region towards a desirable structural change. Even if this assumption is constantly emphasised, in practice many regions continue to adopt a "traditional" perspective, with RIS3 becoming a mere planning document that is developed and closed at a given time, facilitating the selection of projects in thematic areas to be supported by public funds. This has been the case of many regions in the European Union, where the notion of smart specialisation has become an important part of the framework for innovation policies and an essential component of the 2014-2020 funding period, as an ex-ante conditionality for regions access Structural and investment funds from the Regional Policy.

The RIS3 approach is based on a structured, continuous path that comprises several steps in the process of developing a vision, identifying competitive advantages, defining strategic priorities and implementing policies to promote knowledge-based development potential based on S&T+I (Foray et al, 2012) (Figure 1).
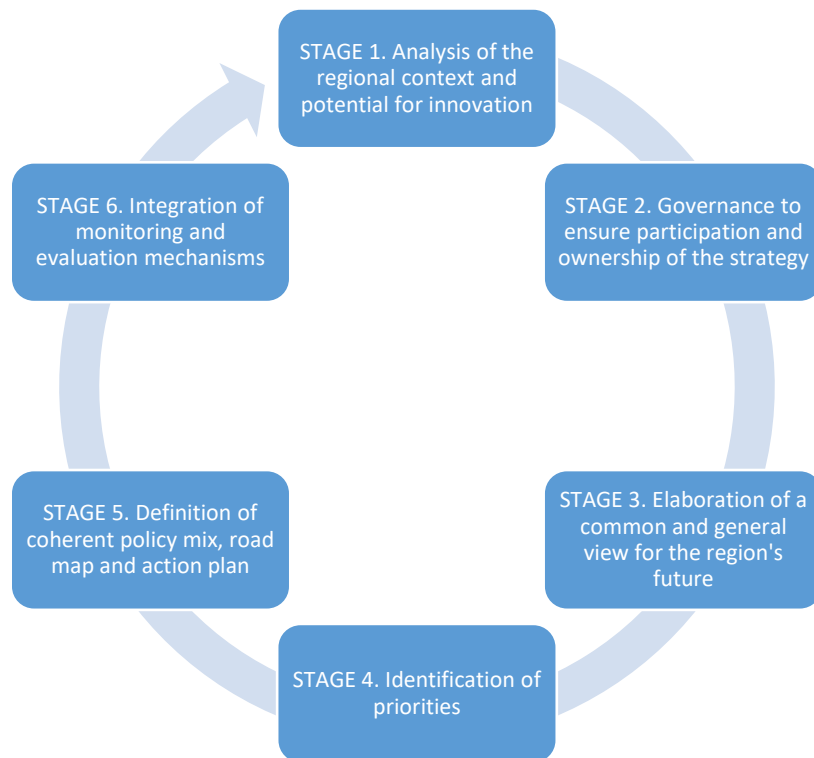
Figure 1: Stages for Preparing a RIS3
Source: Inspired by Foray et al (2012).

The main novelty in the formulation of RIS3 is the entrepreneurial discovery process (EDP) (Del Castillo, Paton & Barroeta, 2015). This process directly considers the discovery of new areas that can transform the region. It is a process that is always present in the evolution of territories. The difference in RIS3 is that now the EDP is assumed as part of the strategy, a targeted process, trying to instigate the combination of bottom-up approaches with stakeholder engagement in policymaking and governance. It assumes that the decision makers cannot obtain all relevant knowledge to decide the desirable future of the region and therefore need to listen the actors of innovation in the territory (Pinto et al, 2018).

Another very interesting aspect of the RIS3 formulation is the so-called granularity principle (Richardson, Healy & Morgan, 2014), suggesting that policy focus should not be on specific sectors or clusters but on concrete activities in the interconnection between related variety domains. These specific activities can be discovered through the internalisation of EDP in the RIS3 project and the creation of new "ideas-partnerships" ideas (Boden et al, 2015).

The RIS3 approach in this project in Pernambuco emphasises that, in parallel with the S&T+I dimension, it is important to pay attention to tacit and practical knowledge, highlighting the modes of learning that are usually associated with doing-using-interacting (Jensen et al, 2007). These modes of learning are particularly crucial in regional innovation systems in emerging phases, which are still not well developed, with intermediate institutionalisation of S&T+I practices.

In disadvantaged regions, public policies need to overcome several challenges to be successful in designing and implementing a RIS3 (McCann and Ortega-Argilés, 2016). The disadvantaged regions face an apparent contradiction. They need more innovation, but they have fewer opportunities to promote innovation. Innovation is a highly cumulative phenomenon associated with processes of spatial agglomeration, where more innovative places tend to attract more and more innovation. The regions with the greatest need for innovation have greater difficulties in

absorbing resources for innovation, even when these resources are made available by governments. Innovation actors in disadvantaged regions, particularly firms, have a limited capacity to understand the potential benefits of innovation investment (Fernández-Esquinas, Oostrom & Pinto, 2017).

In economic terms, disadvantaged regions have a less diversified business fabric and limited human resource skills (McCann and Ortega-Argilés, 2016). The existence of related variety can be an essential aspect, since the region benefits strongly from the co-location of companies in related sectors, mainly of medium and high technological intensity, with cognitive proximity that facilitates learning and collaboration (Content & Frenken, 2016). In terms of development, the most disadvantaged regions tend to obtain a larger share of their resources through central government funding and transfers and other public resources, creating dependency relationships with other levels of government. Institutionally, disadvantaged regions tend to have laws and operating rules that are not mature or are inadequate to strengthen innovative and entrepreneurial dynamics. In terms of governance, they have fragile governance systems when compared to more developed regions, with low levels of coordination and cooperation, misalignment between actors and lack of social capital.

In the case of Latin America, the set of specific challenges for the implementation of RIS3 is also relevant and underlines some of the problems already identified (Barroeta et al, 2017). There are constraints in terms of technical and human capital capacities, both on the firm side and on the public administration side. Weak links and lack of trust between private actors and universities and other public research organisations dominate relationships within innovation systems. Accountability is another fundamental problem. Information on the results and impacts of innovation policies is scarce at national level, and even more so at regional level. Finally, the strong motivation of local actors, in pilot phases of innovation policy development, contrasts with the inability to mobilise them in more advanced stages of implementation.

At the same time, in Latin America, institutional configurations too often focus on centralised structures, and the political will of regional and national authorities to encourage truly decentralised development strategies, particularly in the field of S&T, is low. Even when there is political will, the financial resources to implement an ambitious transformation agenda, such as RIS3, are scarce. Regional innovation policies are often diluted in other nationally controlled vertical or horizontal policies, such as export, education, employment and other instruments.

These are complex limits but can be overcome or at least minimised. It is hoped that this will happen in RIS3-PE and in other ongoing smart specialisation-based policy initiatives that are being designed and implemented in Latin America.

3
Innovation Dynamics in Pernambuco

Pernambuco: Innovative Profile

Pernambuco is located in the centre-east region of the Northeast Region of Brazil and has a territorial extension of almost 100 thousand square kilometres and a population of about 9.5 million inhabitants (IBGE, 2017). This region is commonly considered a territory with an economic lag in national terms, but in the last decades, the State of Pernambuco presented a relevant economic growth, although in recent years, it was also influenced by the economic crisis that affected Brazil.

Historically, agriculture, with the production of sugar cane, was the most prominent economic activity. However, in the last three decades, this scenario has changed dramatically with the rise of the services sector driven by commerce and public administration. The industry also developed, with the capacity to attract investments in the transformation of minerals, Clothing, chemicals, petrochemicals, pharmaceuticals, furniture, transport and energy (IBGE, 2017). Recife, the capital of Pernambuco, is the most prominent expression of this change. With the implementation and expansion of Porto Digital, which concentrates hundreds of companies in the IT sector, Recife has assumed a role in global value chains as a centre in IT and in many of its subsectors (Feferman, 2014).

Recent data from PINTEC 2014 (IBGE, 2016) underscore both the Northeast and Pernambuco's limitations in the dynamics of innovation, but also suggests some encouraging aspects. Although spending on innovative activities as a whole (as a percentage of net revenue) by the private sector is lower in Pernambuco than the national average or the Northeast average, considering R&D expenditures, this State shows greater efforts. Pernambuco also shows values above the national and northeastern average in the percentage of innovative companies, and product and process innovation (Figure 2). Pernambuco has a number of innovative companies that introduce product and process innovation (Figure 3). However, the same source shows that innovation expenditures remain largely dependent on funding public sources (Figure 4).

Pernambuco has been developing a number of very relevant innovation support initiatives in recent years. In 2017, in particular through SECTI-PE, the State is developing a number of initiatives under the recently developed Science, Technology and Innovation Strategy 2017-2022 (ECT & I-PE) (SECTI-PE, 2017) with the objective of developing and strengthening the Pernambuco Innovation System (SPIn).
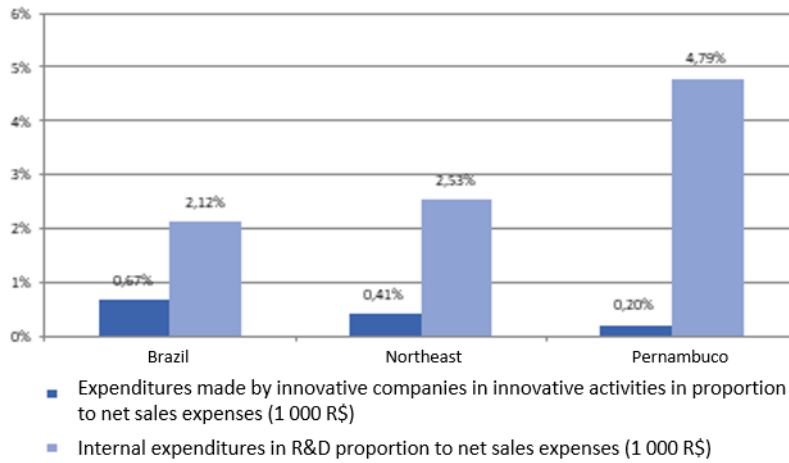
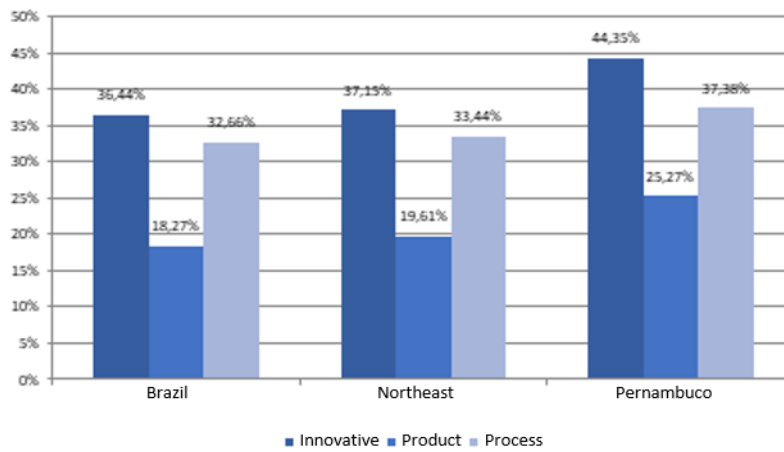**Figure 2:** Expenditure on innovative activities and R&D as a proportion of net revenue

Figure 3: Innovative Companies with Product and Process Innovation (%)
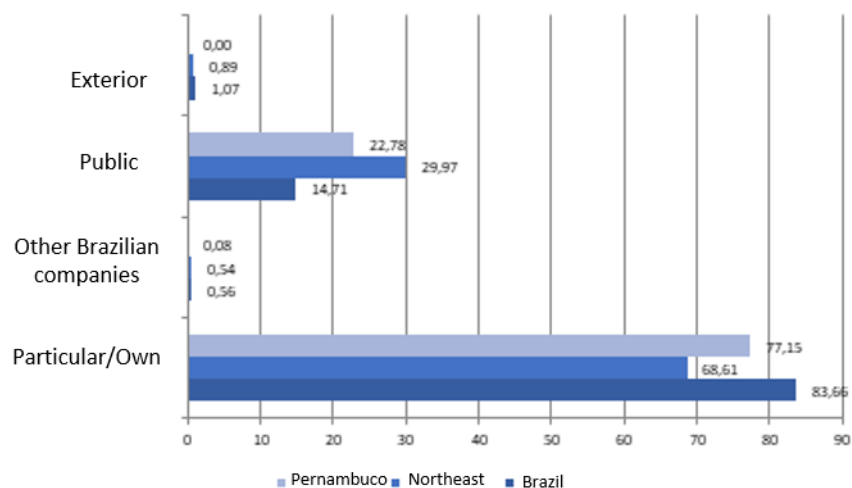

Figure 4: Sources of financing of internal Research and Development activities and other innovative activities (%)
Source: Own elaboration with data from PINTEC, IBGE (2016).

The initiatives promoted in Pernambuco are based on a relatively consolidated innovation system in terms of strategic actors such as innovative companies, universities, S&T institutes, laboratory infrastructures, governance bodies, innovation habitats, incubators and accelerators (Figure 5). The existence of these actors, already mentioned in the strategic initiatives of Pernambuco, such as the aforementioned ECT&I-PE, is fundamental for the success of any proposal for intervention in areas for smart specialisation.
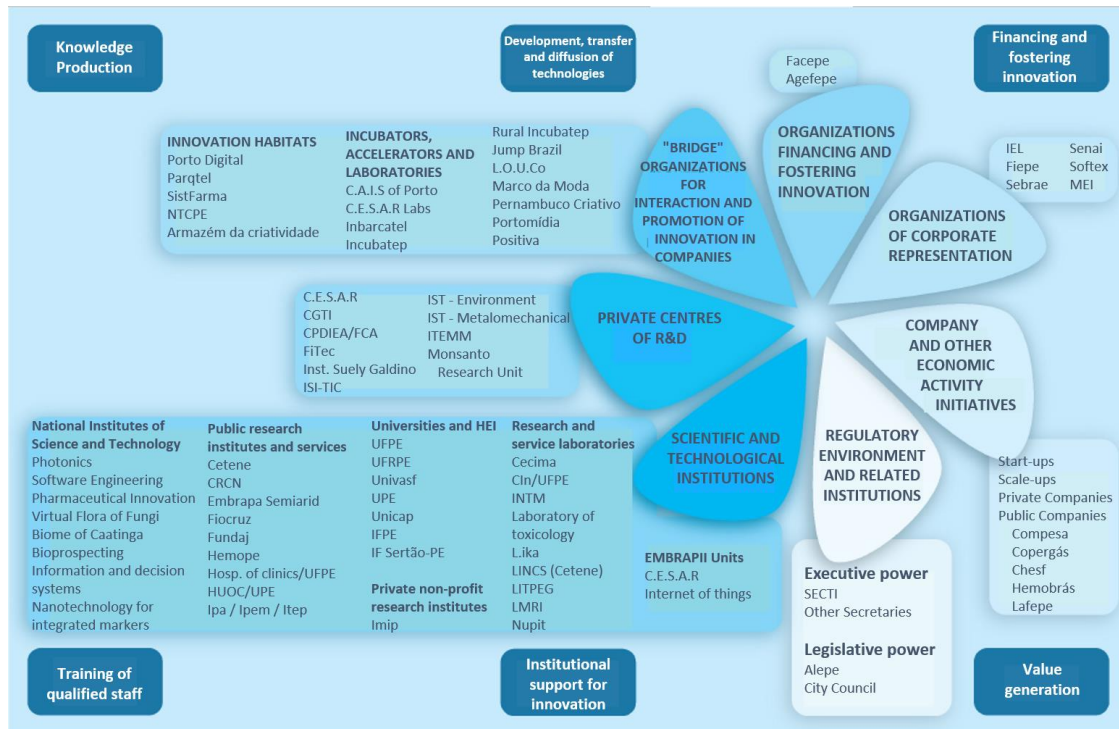
Figure 5: Main Actors of the Pernambuco Innovation System
Source: Author's translation based on SECTI-PE (2017: 29).

Despite these encouraging indicators, Pernambuco encompasses a significant internal heterogeneity that considerably increases the challenges for a successful innovation strategy. On the one hand, it comprises territories with high levels of innovation, knowledge-based companies, a significant number of key public S&T entities like all those linked to the IT sector. On the other hand, the State includes inland territories, some of which have major challenges for socioeconomic development, limits on innovation and important concerns about inclusion and sustainability.

In order to respond to the challenge of territorial heterogeneity, ECT&I-PE organised the State in different "innovative territories" (Figure 6). This organisation is based on the concept of Territorial Innovation System (TIS), an adaptation of the concept of innovation system to a subregional scale.

The definition of territorial innovation system (TIS) proposed by Fernandes (2016) was adopted in ECT&I-PE: "*a set of components, and the relations between them, whose activities and interactions seek to promote the appropriation, development and diffusion of technologies and innovation in a given territory. These can establish relationships with elements of other systems, at more and less comprehensive scales. The decisions of the components of the system are conditioned by the availability of resources, this being a function of institutional, historical-*

cultural, economic and infrastructural factors. In addition, they are still influenced by the different interests that move the local and external agents. In this way, territorial systems involve disputes around choices related to endogenous development or import of technologies. They differ from place to place and thus contribute to the construction of different territorial trajectories" (translation of the author, ECT&I-PE, 2017: 27).
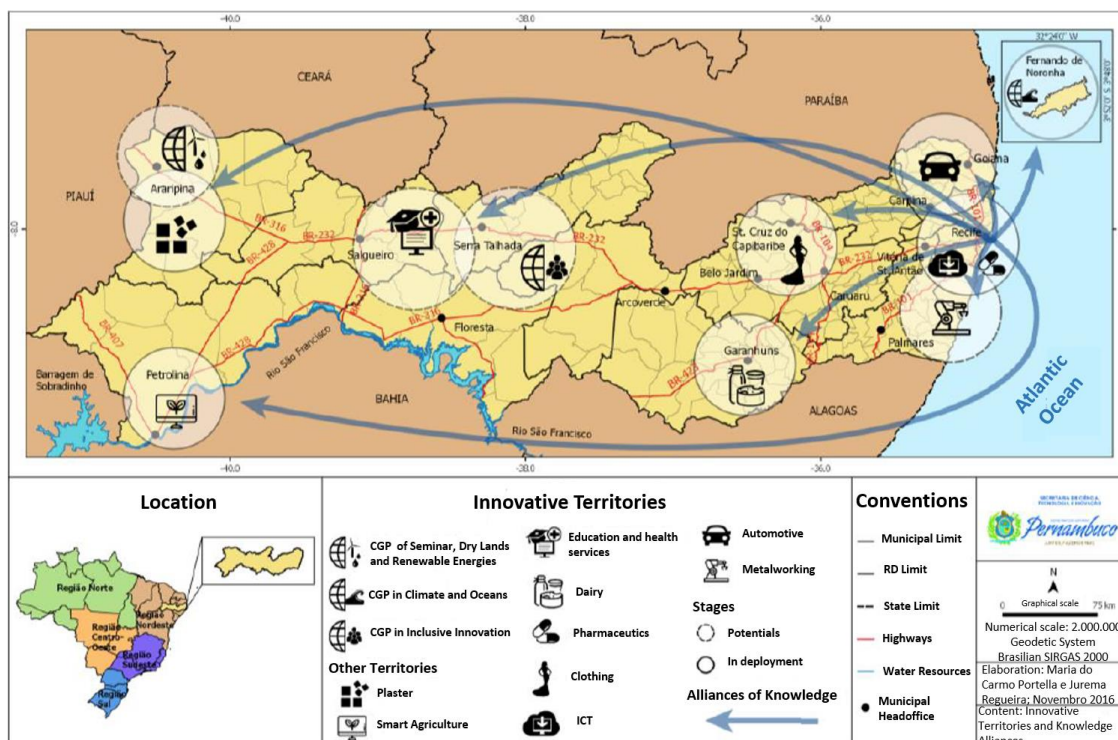
Figure 6: Innovative Territories in Pernambuco
Source: Author's translation based on SECTI-PE (2017: 61).

The definition of TIS is particularly useful in the Brazilian case, since it allows to better understand the diversity of the analytical and intervention scales - national (federal level), regional (meso regions such as Northeast), State level, territorial level and at the local scale (associated with the dynamics of urban agglomerations). TIS allows a better compression of intermediate size territorial groupings, where specific economic activities are configured based on geographic proximity benefits.

RIS3 Pernambuco

It is in this context that the incorporation of some principles of smart specialisation strategies can be useful to promote the innovative dynamics in the State of Pernambuco.

The objective of the contract signed in October 2016 No.2016CE160AT045 EU-CELAC Cooperation on Territorial Cohesion - Regional Systems of Innovation in the State of Pernambuco - Brazil), implemented by the CES - Centre for Social Studies of the University of Coimbra (Portugal), funded by European Commission - DG Regio, was to develop several preliminary studies, to mobilise local actors and to consolidate the reflection on the real possibilities of transferring the logic of smart specialisation to Brazil. It is hoped that these activities contribute

to the construction of a collective vision for the Smart Specialisation Strategy of the State of Pernambuco (RIS3-PE) and that it will strengthen the evidence base for the formulation of S&T+I policies.

Under this contract, often referred to as Phase 2 of RIS3-PE, special attention was given to two TISs, Clothing and Automotive-IT. These domains gained attention and were selected by Phase 1 (2015) project partners to serve as pilot examples to demonstrate and adapt the RIS3 approach to the Brazilian context, in particular through the understanding of the appropriate forms of multilevel governance and selection of priority activities for implementation.

There are many consolidated ideas about these two TISs. TIS Clothing is located in Agreste, especially around the city of Caruaru. In general, it is associated with low-skilled jobs, low-tech activities, most of the very small firms, and a high degree of informality in business relations. However, this TIS is in transition from a low cost-quality, market-oriented regional model to a more sophisticated industry paradigm associated with Fashion, geared to national and international markets.

The TIS Automotive-IT is more dispersed, but is organised around the Fiat-Chrysler Automobiles production unit in Goiana and benefits from the strong expertise in information technology that has characterised Recife in recent years. It is highly qualified and technologically intensive. The TIS has many actors in the IT component but a relatively limited number of actors in the automotive sector, due to the preponderance of its key actor in the dynamics of the territory (see the report elaborated in phase 1).

Phase 2 of the RIS3-PE was supervised by DG REGIO and was anchored in a deep articulation of the CES team, with the Ministry of National Integration (MI) and the Secretary of Science, Technology and Innovation of the State of Pernambuco (SECTI -PE).

Other national actors followed the development of the project:

- Brazilian Institute of Information in Science and Technology (IBICT).
- Centre for Strategic Studies and Management of Science, Technology and Innovation (CGEE).
- Court of Auditors of the Union (TCU).
- National Bank for Economic and Social Development (BNDES).
- National Confederation of Industry (CNI).
- Secretariat of the Government of the Presidency of the Republic (SEGOV).

The Joint Research Centre of the European Commission (IPTS-JRC) participated in the Project as an observer.

The RIS3-PE Project (Phase 2) essentially sought to structure a broader evidence base for the definition of S&T+I public policies anchored in the principles of smart specialisation. For this the Project was divided into eight specific tasks, as detailed in the *Inception Report*:

- Task 1 - Alignment of principles and methodologies
- Task 2 - Governance model
- Task 3 - Evaluation of SPIn resources in terms of S&T+I
- Task 4 - Profile of innovation needs and potential of TIS Clothing
- Task 5 - Profile of innovation needs and potential of TIS Automotive-IT
- Task 6 - Summary Report
- Task 7 – Public Presentation
- Task 8 - A vision for the Smart Specialisation Strategy in Pernambuco.

Task 1 referred to the launch of the project. The task was divided into three sub-tasks: bilateral and multilateral preparatory meetings with different actors for project alignment, elaboration of the Inception Report, meetings in Pernambuco and event (March 20, 2017) for the official launch of the project.

Task 2 corresponds to the definition of a governance model suggestion for the implementation of RIS3-PE.

Tasks 3, 4, and 5 relate to the collection of evidence through empirical studies, based on desk research, interviews, and questionnaires, designed to structure a vision on RIS3-PE. The first study refers to the assessment of the existing territorial resources in terms of S&T+I, the second on the TIS needs and innovation profile, the third on the needs and innovation profile of TIS Automotive-IT. Although independent, the studies present a common logic, secondary information processing to compare with other case studies, a survey applied to strategic actors and the implementation of a workshop for entrepreneurial discovery.

Task 6 consists of a synthesis report, drafted in English, summarising the main results of the project. It was written in a more decoded language and accessible to different types of actors.

Task 7 consisted of a final workshop presenting the results of the different phases of the project. The presentation was held in Brasilia, November 16, 2017, under the theme "Opportunities and Challenges for the Application of the Approach to Smart Specialisations (RIS3) to the Regional Context of Brazil", in the launching event of the *Diálogos Sectoriais* Project (see Programming in attachment).

Task 8 is embodied in this report. Based on the results of the project, it includes a synthesis of the results and suggestions for a consensus vision of smart specialisation for Pernambuco.

Visits to territories

The first task was based on a study visit, in March, for five days, 20-24, to the chosen TISs. The morning of the first day was dedicated to the public presentation of the RIS3-PE Project and its general framework in the set of public policies in the State of Pernambuco. It included

representatives of the Presidency of the Republic, the European Union ambassador in Latin America, the Federal Government, State governments, S&T entities, innovative companies, the European Commission, among other relevant stakeholders (see attached Schedule).

The afternoon of the first day and the following days were dedicated to visits to strategic actors, particularly in Recife, Caruaru, Santa Cruz do Capibaribe and Belo Jardim. During these visits, several interviews were conducted.

Figure 7: The visits resulted in several news published online by the press. In the photo the RIS3-PE group visits the FCA R&D unit in Recife.

Cf. examples of complete materials in:

http://200.238.105.211/cadernos/2017/20170322/1-PoderExecutivo/PoderExecutivo(20170322).pdf

http://www.blogdoneylima.com.br/geral/dimensoes-e-potencial-do-moda-center-santa-cruz-impressionam-integrantes-de-missao-europeia

Figure 8: One of the entities visited was the Armazém da Criatividade, Caruaru

Figure 9: Factories in the Clothing sector, in the photo a production unit installed in Santa Cruz do Capibaribe

The last day was dedicated to an internal meeting to level the knowledge of the project participants on the scope and objectives of the Phase 2, discuss the methodology to be adopted, schedule the activities and stimulate personal interaction among all involved.

(For more information see Deliverable 2a - Technical Visit Report, April 2017)

Assessment of systemic failures

After the visit, the interviewees and other participants were contacted by e-mail to fill out a small questionnaire about their perceptions about the relevance of systemic failures (see Pinto & Pereira, 2014 for a synthesis of this literature). The responses obtained from 12 key actors are summarised in Figure 10 and provided a good initial contribution to understanding the problems in the State of Pernambuco. The main problems identified are especially related to policy coordination, institutional failures and lack of articulation among actors, in particular demand.
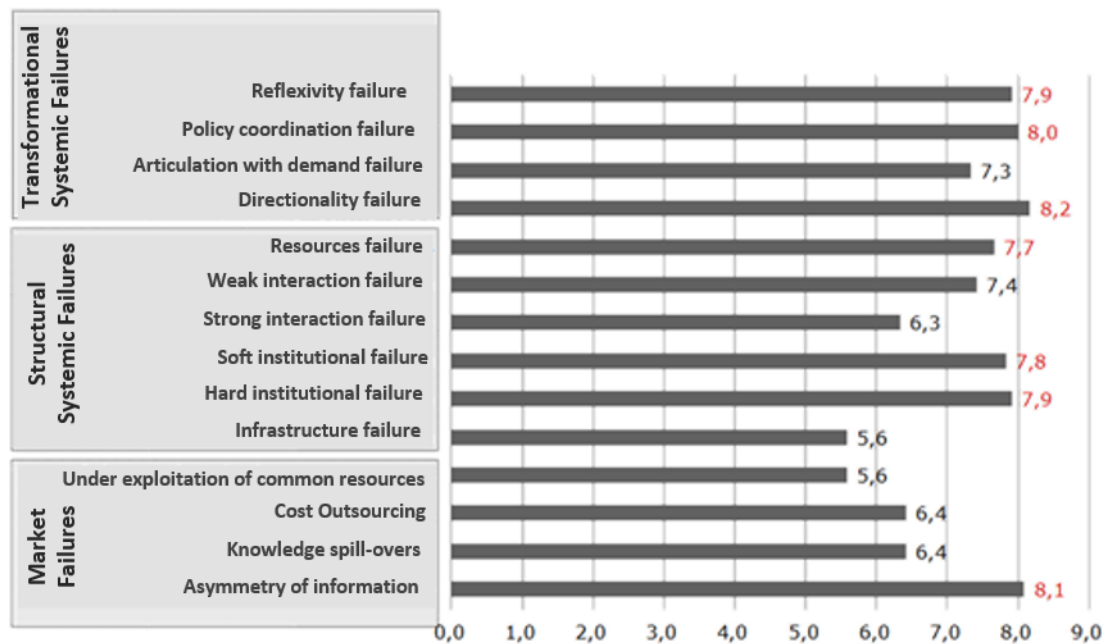
Figure 10: Evaluation of Systemic Failures in Pernambuco
Source: Own elaboration.

(More information, see Deliverable 11 Pinto et al, 2017)

Governance Model

Often, regional innovation policies are accused of being based on the replication of good practices from more advanced regions, with a very strong top-down approach (Tödtling & Trippl, 2005). These limits prevent different actors from developing initiatives and projects according to their capacities and interests and, thus, the effective implementation of public policies (Howells, 2005).

The governance model suggested for a future RIS3-PE suggests a participatory governance framework. It is proposed that, based on the State Council for Science, Technology and Innovation - CONCITEC, a Thematic Chamber for Innovation and Smart Specialisation be created. This Thematic Chamber, created under the Secretariat of Science, Technology and Innovation of Pernambuco, would be the governing body of the RIS3-PE initiative and should be chaired by this Secretary of State in Pernambuco. The model also suggests the creation of an Advisory Board to inform the Thematic Committee and where competent bodies in this field should be represented at the level of the Federal Government, international and national experts and representatives of the European Commission.

For project management, it is proposed that the governance structure also develops an Executive Committee or a management team composed of a support group, ideally attached or dependent on SECTI-PE, which will be responsible for managing the implementation of RIS3.

Finally, the suggested governance structure includes the creation of two *fora*, one in each territorial innovation system, which will act as platforms of smart specialisation in their respective domains. These *fora* should be set up as working groups for the constant entrepreneurial discovery process.

Figure 11: Governance Model
Source: Elaborated based on a proposal of SECTI-PE.

(More information cf. Deliverable 2 Governance Model, June 2017)
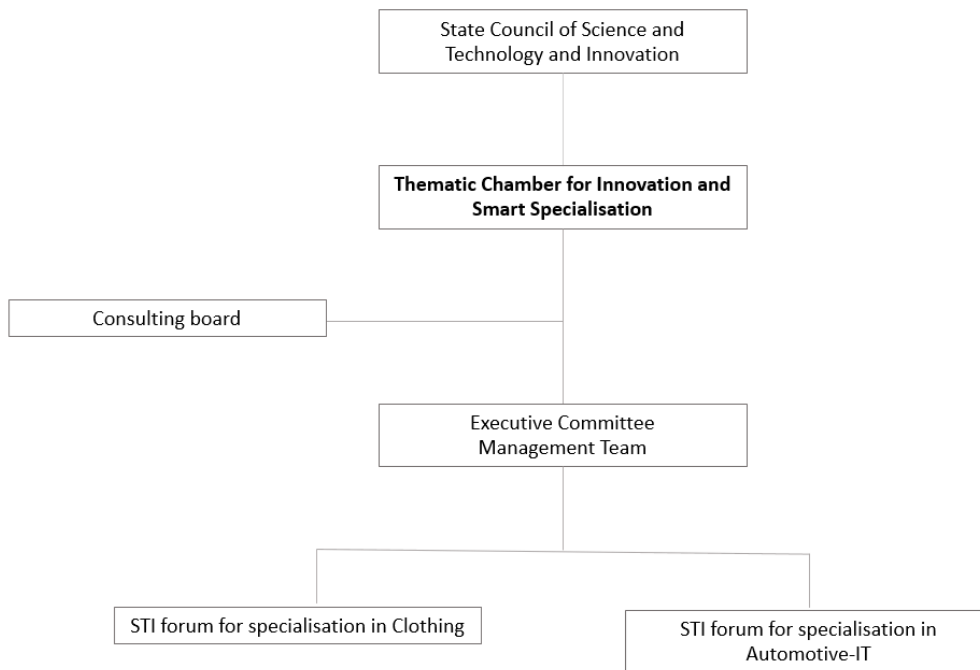
Pernambuco and a Comparative Case Study

Based on secondary information and other reports, a synthetic analysis of the SPIn and the TISs under analysis in RIS3-PE was elaborated. SPIn presents aspects that reveal its potential, but also have discrepancies. In the TIS Automotive-IT there are a considerable number of institutions capable of supporting innovation, whether public or private, and a considerable part of the companies already carry out work directly linked to universities and research centres. However, more engagement is still necessary so research entities can mitigate systemic failures. However, in TIS Clothing, particularly in the Agreste region of Pernambuco, these type of entities is scarce and the local entrepreneurship culture favours a poor environment in this type of institutions, which consequently causes the population to demonstrate limited levels of training.

The TISs also presents great contrasts regarding the number of companies, qualification of employees, number of support entities, technological intensity and focus. This leads to unequal challenges. However, the information collected for the Pernambuco case study reveals that there are problems that are common, such as the infrastructure deficit that exists in the State, particularly in terms of transport infrastructure, namely highway and railroad. In addition, it is worth mentioning that the Agreste region still suffers from water problems, which strangles the development of municipalities, and TIS Clothing in particular. It is also important to highlight the problem of public security that devastates the region and is worrying clients of the garment fairs which are characteristic of the Agreste region, having alarming figures in the region of Recife.

The collection of a solid base of evidence for the RIS3-PE Project included a multiple case study comparing Pernambuco's reality with other territories and sectors. The case studies were based on secondary information, developed by different authors, CES staff and specialists from the territories under analysis. The cases followed a common analytical grid, inspired by Baier, Kroll

& Zenker (2013), paying attention to dimensions such as the importance of the sector in the regional economy, regional vision, infrastructure resources, scientific and technological resources, symbolic resources, participatory processes and main lessons of the case study (Table 1).

The selected case studies were divided as follows: the Vale do Itajaí in Brazil and the Northern Region of Portugal were analysed in the Clothing and clothing sector; in the automotive sector the cases of São José dos Pinhais in Brazil, Palmela in Portugal, Cantabria in Spain and West Region of Romania were analysed. At the level of innovation governance models, we analysed the National Strategy for Smart Specialisation of Portugal, the Regional Strategy for Smart Specialisation of Andalusia, the cases of Chile and Santa Catarina (Brazil).

Sectorial Case Studies	Importance of the sector
	Infrastructure resources
	Scientific and technological resources
	Symbolic Resources
Innovation Governance Case Studies	Articulation
	Actors and participation
	Governance
Main Lessons	

Table 1: Dimensions of Analysis of Case Studies
Source: Own elaboration.

(More information, see Deliverable 5 Case Studies Report, August of 2017)

Assessment of the Innovation System

In order to better understand the current situation and the challenges of the Pernambuco Innovation System, a qualitative analysis was prepared. This study was based on interviews that were later transcribed and examined through content analysis techniques using Nvivo software. SPIn's S&T+I resource assessment was based on primary qualitative information collected in 21 interviews with a number of key actors, including companies, governance bodies, higher education and research institutions, and innovation intermediaries.

Content analysis organised qualitative information in the following dimensions: actors' overview, human capital, collaborative networks, strengths and weaknesses of the innovation system, opportunities and threats, policies to improve the effectiveness of the innovation system and desired structural changes. The interviewees were also categorised by the domain to which they belong: Clothing, Automotive-IT and S&T+I in general.

The analysis allowed to understand the elements that are more present in the transcriptions. Figure 12 represents the relative importance, measured by the number of references to coded categories, in the set of interviews. The counting frequency of the coded categories corresponds to the area occupied in each Tree Plot graphic scheme (see the following figures). The "strengths and weaknesses of RIS" was the most codified category, followed by "structural change" and by a high number of references coded as "measures to improve RIS".
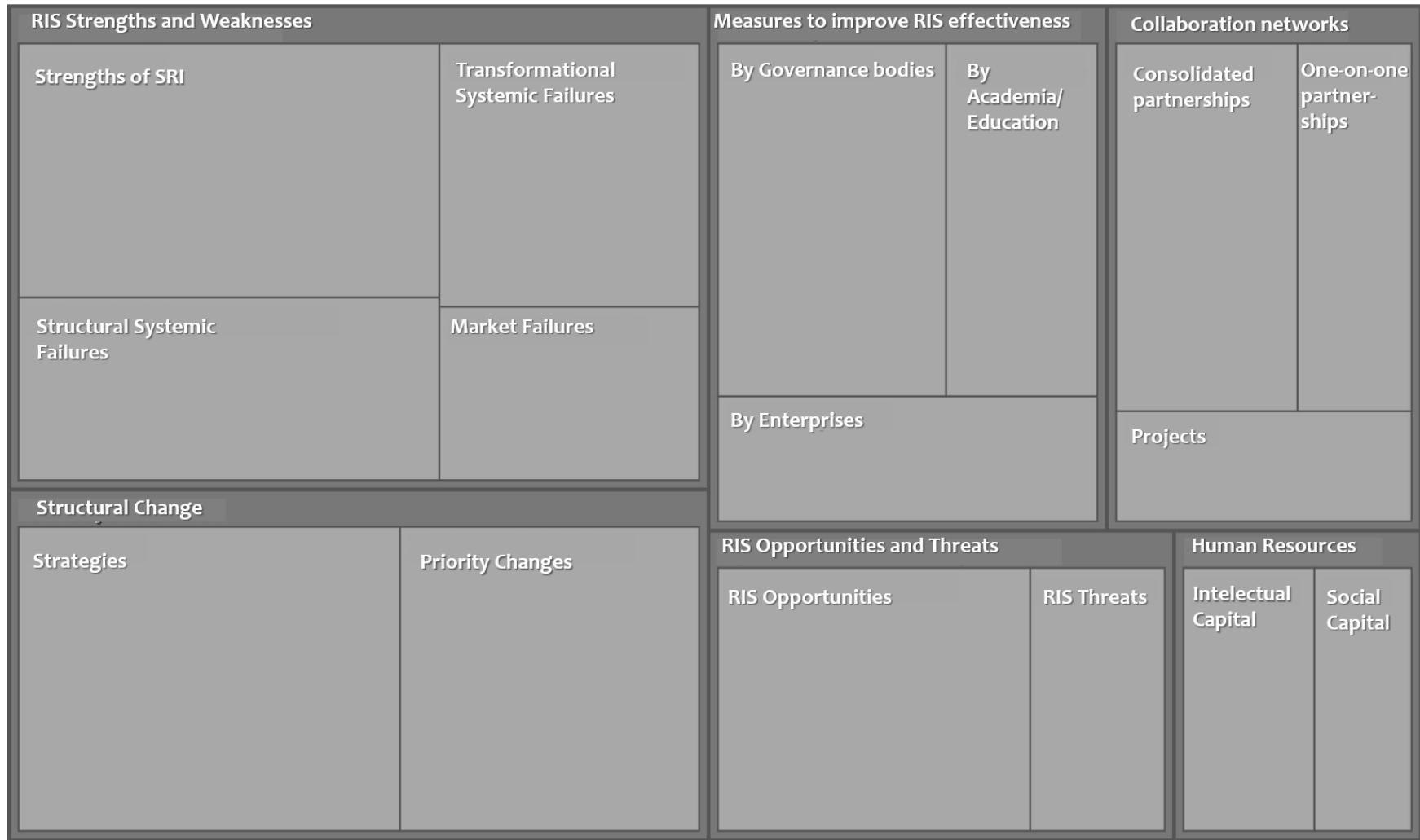
Figure 12: Tree Plot with all the references codified
Source: Own Elaboration.

The main strengths, weaknesses, opportunities and threats are summarised in Table 2

Strengths	Weaknesses
Opportunity for partnerships	Qualification of human resources
Pernambuco culture	Infrastructure
Governance support	Coordination of actors
Rooting of local intellectual capital	Systemic vision
Opportunities	**Threats**
University-industry relations	Safety
Market-oriented training	Poorly consolidated partnerships
Capacitation of actors	Lack of training

Table 2: SWOT Matrix Summary with Key Forces, Weaknesses, Opportunities, Threats
Source: Own elaboration**.**

Figure 13: Measures for Structural Change
Source: Own elaboration.

Focusing only on measures to introduce structural change in Pernambuco, consolidation and articulation among the different actors, constant information flows, improvement of infrastructures, and increased efforts to apply knowledge are some of the strategies and changes highlighted by the analysis (Figure 13).

As concrete lines of action, the results suggest that government should strengthen incentives for innovation, academia should be more concerned with creating training supply that responds more directly to market needs, and companies must develop a culture of collaboration, through the establishment of associations, technological clusters or other types of coordination mechanisms.
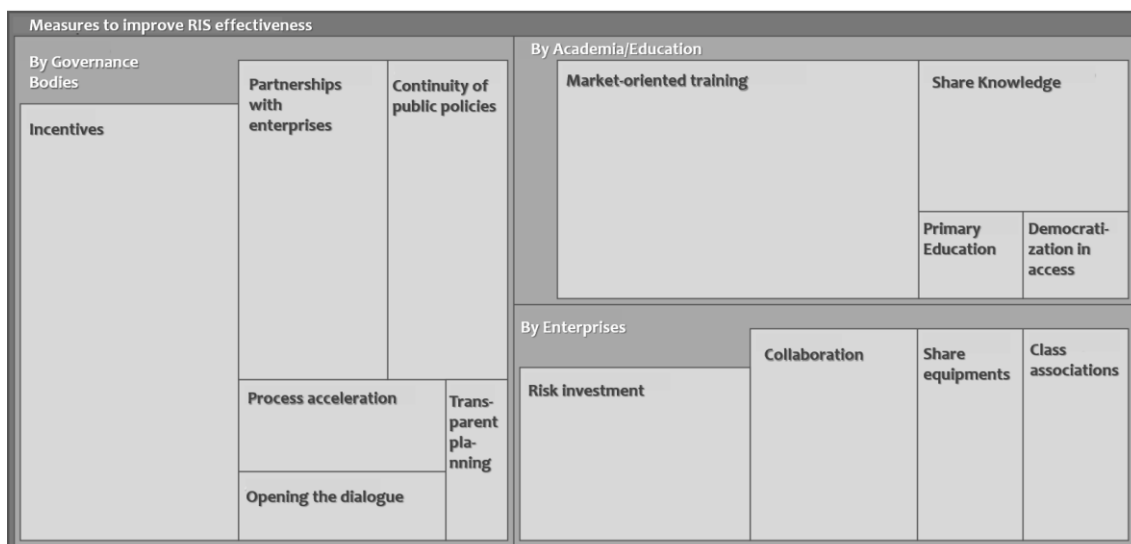
Figure 14: Action Lines for SPIn Reinforcement
Source: Own elaboration.

(More information, see Deliverable 5 Report Evaluating Resources and Problems in the Pernambuco Innovation System: Visions of Key Actors, October 2017)

Innovation and Knowledge Needs

Another key activity for the creation of a solid base of evidence was an assessment of the knowledge and innovation needs in the TISs Clothing and Automotive-IT. The prepared questionnaire was inspired by consolidated research on innovation, such as the CIS - Community Innovation Survey or PINTEC in Brazil, and the literature on knowledge-based services (Pinto, Esquinas & Uyarra, 2015). The final version of the questionnaire resulted from suggestions from a broad group of project participants. It consisted of open and closed questions and was applied to a strategic sample of 31 companies in each TIS to highlight the uses, importance and priorities of companies in relation to innovation. The method for assessing knowledge and innovation needs focused on the types of services considered to be key to innovation in the enterprise.

Studies have shown that a number of companies develop R&D (52% in Clothing and 58% in Automotive-IT). However, many companies confirm that they do not innovate (46.7% and 20.0%, respectively). The creation of new processes (74.1 and 87.8%) and products (85.2 and 92%) for the company is larger than expected, for example, when compared with PINTEC results. These inflated numbers can be explained by three contrasting problems. One is the limitation of self-reporting. It is well known that less innovative firms often tend to over-report the number of innovative activities because of misunderstandings about innovation. Another limitation is the (intended) bias of the strategic sample for potentially innovative firms in each TIS. And finally, a third issue is that more innovative companies also tend to be more available to respond to this type of survey. Figure 15 illustrates the use of different types of services in the two TISs.
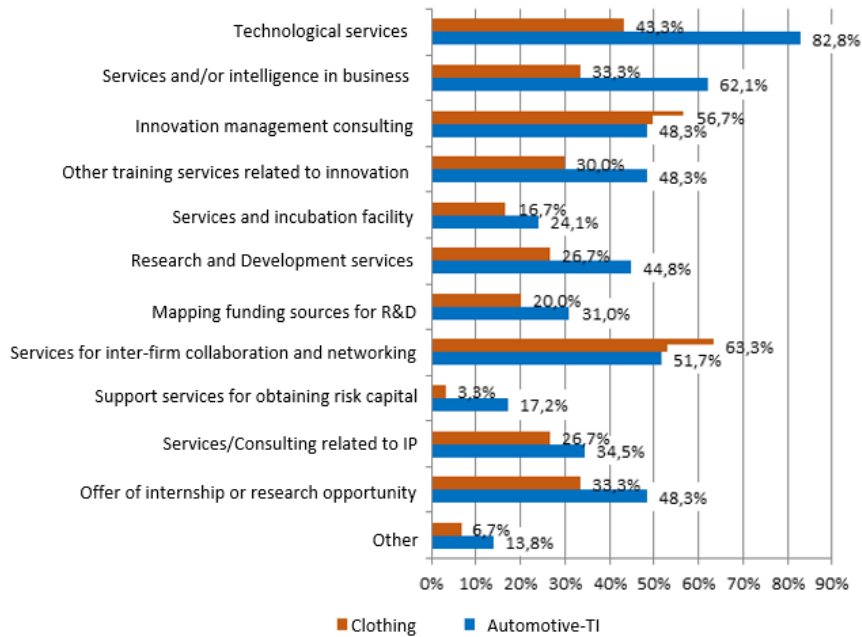
Figure 15: Use of knowledge and innovation services (n = 62)
Source: Own elaboration.

In addition, the qualitative analysis of the answers about the understandings about innovation (Figure 16) makes it possible to highlight a more focused approach to product innovation in Clothing and a greater emphasis on process innovation in Automotive-IT.

Figure 16: Understandings about innovation (n = 62)
Source: Own elaboration.

In addition to presenting the main results in terms of descriptive statistics of closed answers and analysis of content of open answers, the study also presented an exploratory analysis to understand the interrelationships between the different types of services that support the production, transfer and commercialisation of knowledge (Principal Components Analysis) and different types of actors (Cluster Analysis).

The analysis suggests that there are 4 different types of uses (main components) of the services in the sample of Automotive-IT (Knowledge Production and Business Intelligence, Innovation Internationalisation, Market Access Services and Other Training for Innovation). On the other hand, in the sample of Clothing there are 5 different types of uses of services (Collaboration for Innovation, Application of Knowledge, Access to Markets, Management of Innovation and Production of Knowledge).
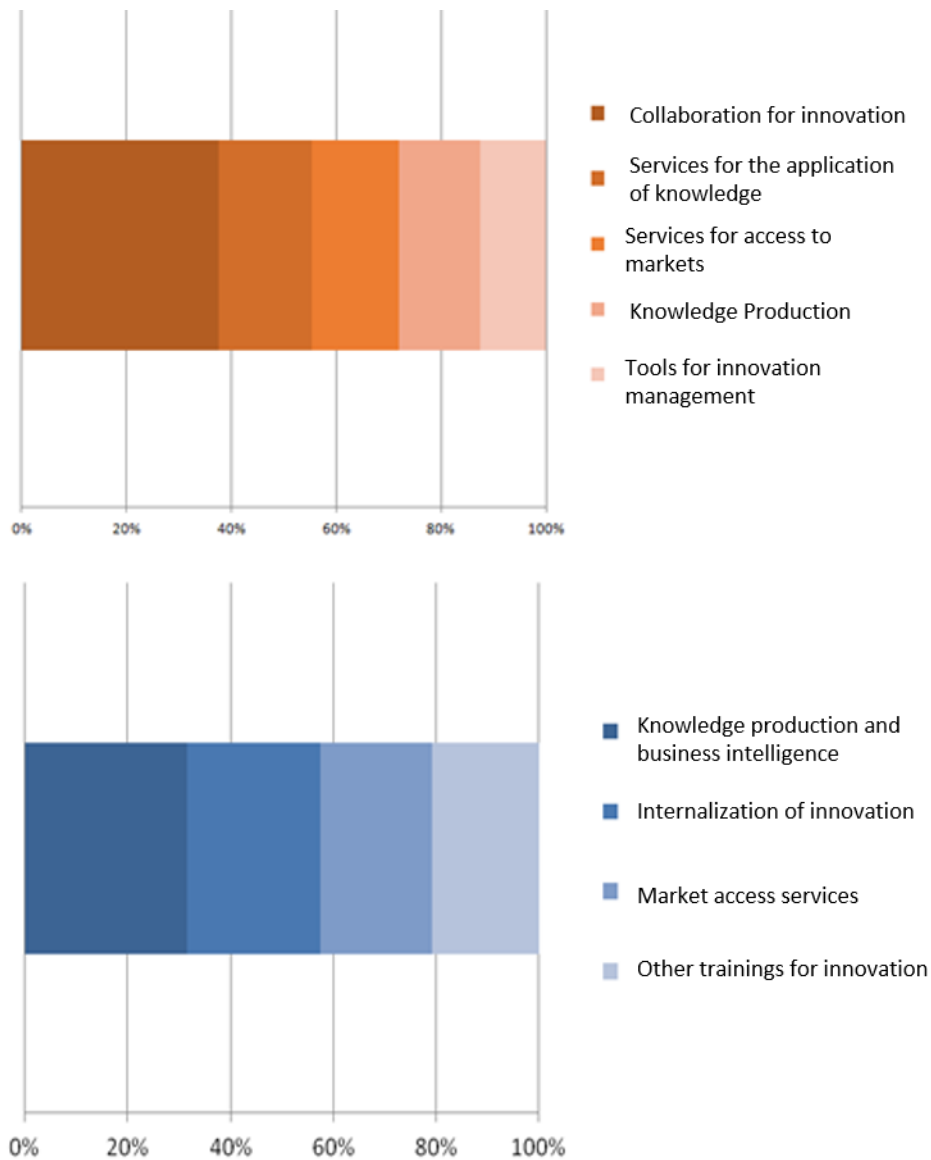
Figure 17: Complementarities between uses of knowledge and innovation services, Principal Component Analysis
Source: Own elaboration.

Cluster analysis showed that the behaviours were not significantly different among the respondents. These results suggest that there is a relatively broad set of innovation policy measures related with the use of these specific services that can be applied to both TISs.

(More information, see Deliverables 6 and 8 Reporting Knowledge and Innovation Needs – TIS Clothing and TIS Automotive-IT, November 2017).

Entrepreneurial Discovery Process

The Entrepreneurial Discovery Process (EDP) is probably the key element of the RIS3 methodology (Pinto et al, 2018). It refers in practice to prioritising investment for structural change in the region based on an inclusive, bottom-up and evidence-based process, which includes stakeholder participation and attention to existing or potential market demands (Strong, Marinelli & Foray, 2016).

The EDP is particularly important for, as an initial step in the reflection on the smart specialisation strategy, to indicate suggestions for new domains of technological development and market opportunities from the perspective of entrepreneurs. The EDP should facilitate the identification of priority areas, but also specific paths, considering concrete activities of ideas-partnerships for the exploration or realisation of these areas. It should also allow reflection on the interrelationships of each domain with KETs – key enabling technologies (Hermosa et al, 2015).

Two EDP workshops were co-organised in Pernambuco by CES, SECTI-PE and MI, to contribute to the analysis of innovation profile and potential needs in the two TISs. The main objective of the events was to generate suggestions on priorities and ideas-partnerships for RIS3-PE. These workshops were held in July 2017 (Clothing, Caruaru and Automotive-IT, Recife).

Interaction	**Idea generator**
Between State, researchers, companies, civil society.	Innovation in specific areas
Collaboration in new research projects	Identification of strengths and weaknesses
Training of the actors	Detection of innovation barriers
Building trust	Contributions to innovation policies
International networks	Setting priorities
	Listing of market opportunities

A test to

The relevance of participation in territorial innovation policies

The implementation of EDP

Understanding RIS3

Figure 18: Objectives of EDP workshops
Source: Own elaboration.

At the EDP Clothing workshop, the participants were organised into two groups (1 - efficiency in production processes to reach new markets, 2 - approximation of scientific and technological potential in the sector of Clothing, including environmental sustainability solutions). Of the 14 initial ideas developed by participants (Figure 19), the group selected 6 (Table 3).

Efficiency in production processes to reach new markets

Uniform application of quality

Shared Governance

Knowledge for international production

Low manufacturing

Statistical data of successful local companies in e-commerce

Nucleus of permanent digital innovation

Specialized training in Clothing

Virtual Market

Nucleus for prospecting in the Clothing sector

E-commerce

Approximation of scientific and technological potential

Incentive program for solid waste management

Centre for incentive to the competitiveness of Clothing APL

HUB of demands and initiatives and quality system

Waste recycling plant of Clothing and laundry

Figure 19: Ideas-Partnerships identified at the Clothing workshop
Source: Own elaboration.

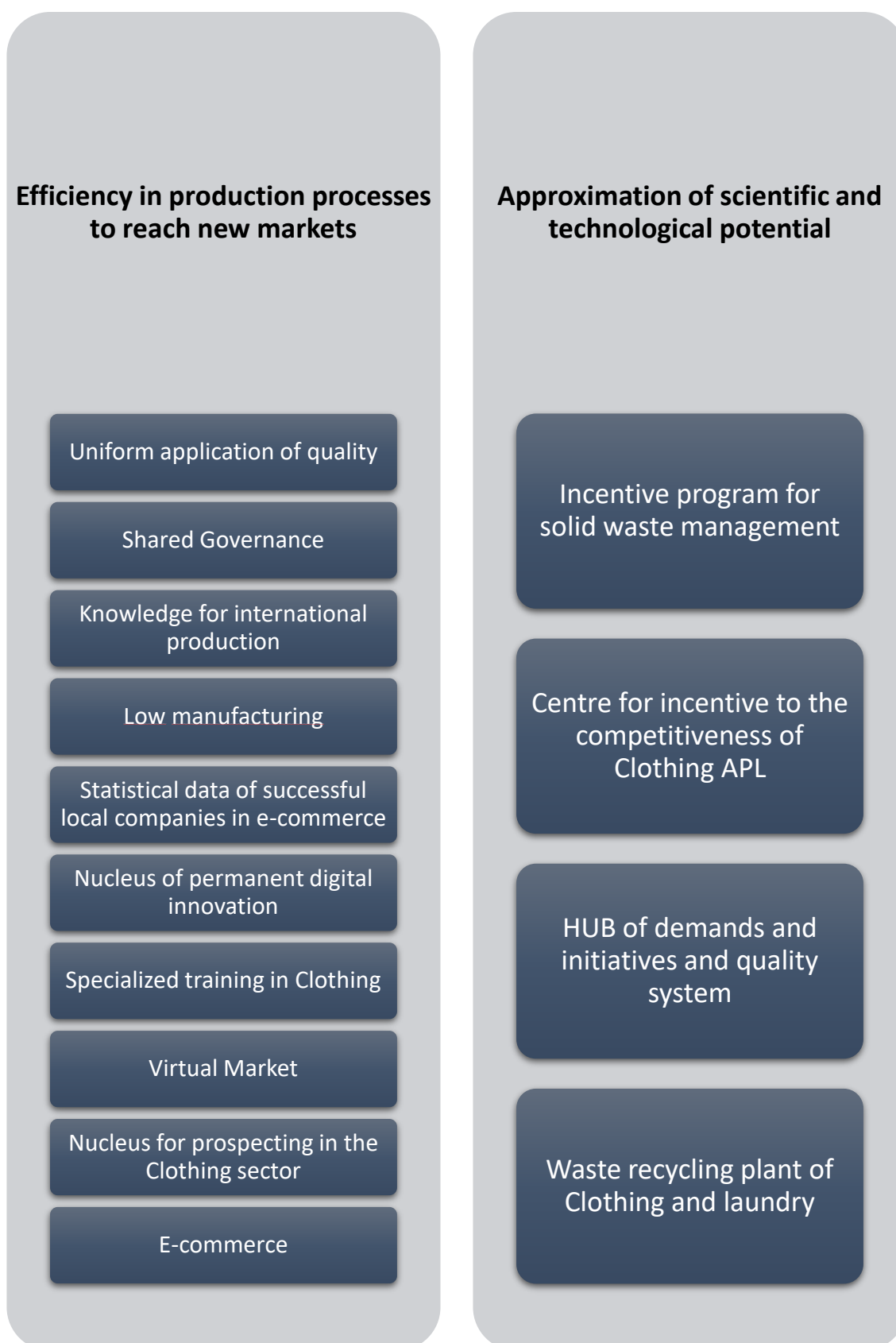| Name	Developing *e-commerce*	Shared governance model	Assurance of process quality and efficient use of inputs	Generation of knowledge and training of human resources	Construction of an eco-plant for clothing and laundry	Collaborative Innovation Centre
Brief description of the innovative idea / partnership	A working group to enable e-commerce. It should involve the culture of cooperation, both of sales and of collective purchase (aiming to reduce costs). The development of the technological tool is relatively easy to implement; the difficulty lies in the gap in the culture of cooperation and trust inherent to the concept of collaborative economy.	Strengthen and promote a governance model focused on the APL of Clothing, with the creation of a nucleus.	Implantation of embedded systems in the production processes to guarantee/increase the quality of the products/services, meeting the national/international standards.	Strengthening and expansion of qualification programs for the sector, through partnerships between public and private institutions, forming a kind of specific university training in the Clothing sector, in order to promote training for the entire production chain (production, design, distribution and commercialisation).	Construction of an eco-plant for clothing and laundry	Collaborative partner networks, aimed at stimulating and developing innovation, competitiveness and sustainability of the territory based on RIS3.
Identification of the research components and where these capacities lie	1) updated information on statistical data; 2) success stories to serve as an example; 3) comparative analysis; 4) initial involvement of trade associations (eg ACIC), sectoral chambers (Clothing).	This project identifies itself as being of medium-long term. Its application and tools for its execution are available in the APL itself, also making it possible for the State to adhere to new solutions.	1) Development of research to meet the specific requirements of the Clothing sector; 2) Application of existing technologies.	Especially at the local level, it is possible to expand the search for capacity also at the State, federal or even international level.	1) Short term; 2) Municipal and State capacities.	1) Short term: Formalisation of the agreement of technical cooperation between different actors; 2) Long term: Acceleration program for the internationalisation of companies.
Regional forces on which the idea / partnership is built	1) knowledge of the Clothing sector; 2) the means of production are in the region; 3) the region is already a reference in the Clothing sector; 4) there is already a innovation pole (Armazém da Criatividade).	1) Expand the local management committee (LMG); 2) include higher education institutions and municipalities.	1) Department of Electronic and Production Engineering of UFPE; 2) ITEP; 3) SENAI; 4) Entrepreneurs; 5) FACEPE; 6) Parqtel.	1) Sebrae; 2) SENAI; 3) UFPE; 4) ITEP; 5) Business Associations; 6) Public and private colleges and universities; 7) Armazém da Criatividade	1) Entrepreneurs; 2) Universities and Institutes; 3) State Government; 4) INPI; 5) Trade associations 6) Cooperatives in the region.	1) Existing ICTs (ASCES, UNIFAVIP, UPE and UFPE); 2) Development Agencies (FACEPE, FINEP, FINTEC, BNDES, ABDI ...); (3) trade associations; 4) Public administration.
Needs / challenges that the idea can help solve	1) strengthen local entrepreneurship; 2) sustainability in the process; 3) increase in profit margins and competitive advantages; 4) generation of value for the customer; 5) increased formality of work.	1) Create visibility of the actions of the partners involved to allow the connection between all the actors; 2) optimise processes so they can be achieved and sustained.	1) Increase the quality of products/services; 2) Reduction of waste; 3) Increase in value added of products/services.	1) Expand the level of qualification of human resources and the quality of products and services through technical advice and training, lectures, and seek to break the cultural paradigms that block the sector.	1) Treatment of waste generated by the clothing and laundry; 2) Prove the economic return to the entrepreneur.	1) Competitiveness; 2) Innovation; 3) Formalisation; 4) RH Qualification; 5) Internationalisation; 6) Sustainability; 7) 8Ps
Identifying required partners / roles to play	1) Sebrae (has methodology to get the idea of the paper/trends/research); 2) Business Associations; 3) Armazém da Criatividade; 4) Universities; 5) Entrepreneurs.	1) Higher Education; 2) City halls; 3) Sebrae; 4) ITEP; 5) System S, 6) Representative entities.	1) Parqtel and entrepreneurs in the APL support sector: scale production of embedded systems and sponsor activities; 2) Entrepreneurs: promote a transformative opinion within the APL; 3) FACEPE: scholarships for researchers, promotion of animators, interlocution between companies, universities and other institutions; 4) Department of Electronic Engineering: development of embedded systems, intellectual property	1) Sebrae; 2) SENAI; 3) UFPE; 4) ITEP; 5) Business Associations; 6) Public and private colleges and universities; 7) Armazém da Criatividade	1) Entrepreneurs; 2) Universities and R&D Institutes; 3) State Government; 4) INPI; 5) Trade associations 6) Cooperatives in the region.	1) ICTs: Knowledge and intellectual property; 2) Development agencies: Financing programs; 3) Entrepreneurs: investments and openness to innovative culture; 4) Public administration: implementation of public policies.

Estimated resources needed	About R $ 20,000.00 (around 5,000€) for each 15 companies to participate in the work group. Source: Sebrae.	About US $ 400,000 (around 325,000€) through financing or another source.	For a 24-month project: 1) 04 master's students; 02) 01 doctoral student; 3) 3 senior teachers; 4) awareness workshops; 5) components that make up embedded systems; 6) intellectual property.	Depending on the actions to be developed within the project.	An economic and financial project is needed.	About EUR 05 million for: training, technical visits, requalification / optimisation of physical spaces, event promotion, virtual collaboration platform / systems, research and strategic prospection.
Next Steps	1) Contact trade associations and Clothing sector chamber to present the project and indicate entrepreneurs; 2) Find out if there is already a similar project being developed; 3) Hold a meeting with business people to know the interest; 4) Formalise the partnership instrument with the institution and Sebrae; 5) To relate what each institution / partner can contribute: - Sebrae: methodology and infrastructure - University: capacity building – Armazém da Criatividade: experimentation, capacity building and infrastructure. 6) Divide activities by each partner; 7) Start of activities.	1) Improve LGM capabilities; 2) Find funding partners to carry out the planning and implementation.	1) In conjunction with APL representatives, define which embedded systems (from the simplest to the most complex), centred on the demands of APL itself.	Establishment of partnerships and cooperation between institutions to know how each one can collaborate.	1) Obtaining stamps of social and environmental quality.	1) Identify, assemble and develop draft Technical Cooperation Agreement.

Table 3: Development of ideas-priority partnerships in TIS Clothing
Source: Own elaboration

In summary, it is possible to verify two predominant trends in the ideas-partnerships generated by the participants of the Entrepreneurial Discovery workshop for the Clothing sector: on the one hand, a bet on the virtual market and on the digitisation and computerisation of the processes, since this concern is explicitly or latently present in most of the ideas identified; on the other hand, a concern in the consolidation of partnerships and collaboration between entities, in order to increase the potential for developing the ideas and innovative capacity of the sector.

Figure 20: Clothing EDP workshop in Caruaru
Source: SECTI-PE

In the Automotive-IT sector, the participants were organised into three groups: 1 - foundations for the car of the future, 2 - Recife as a smart city in transportation and mobility: 3 - to qualify and retain talent in Pernambuco to connect science and industry in the Automotive-IT. Of the 23 initial ideas identified (Figure 21), 7 were considered prioritary (Table 4).

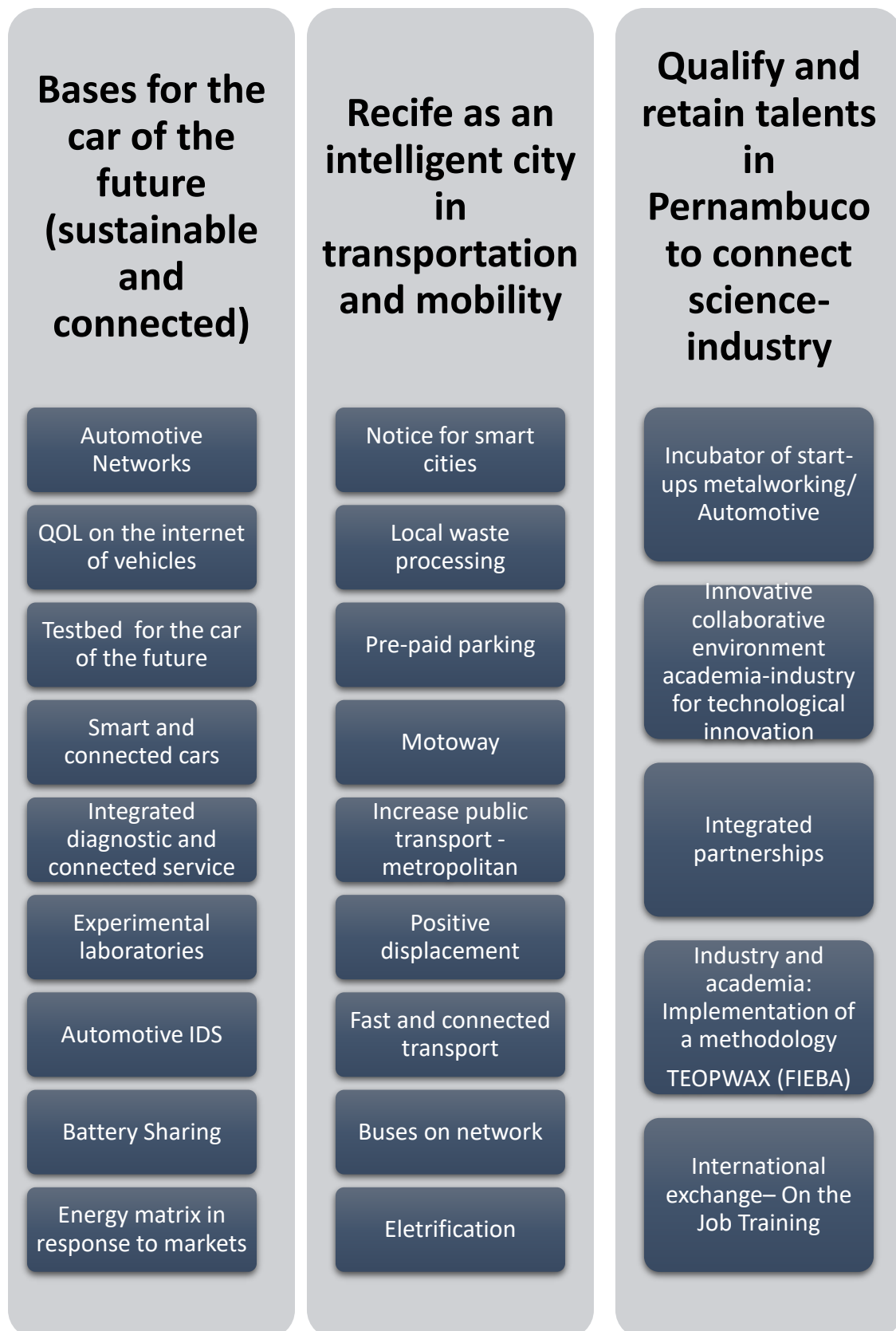| Bases for the car of the future (sustainable and connected)	Recife as an intelligent city in transportation and mobility	Qualify and retain talents in Pernambuco to connect science-industry
Automotive Networks	Notice for smart cities	Incubator of start-ups metalworking/ Automotive
QOL on the internet of vehicles	Local waste processing	Innovative collaborative environment academia-industry for technological innovation
Testbed for the car of the future	Pre-paid parking	Integrated partnerships
Smart and connected cars	Motoway	Industry and academia: Implementation of a methodology TEOPWAX (FIEBA)
Integrated diagnostic and connected service	Increase public transport - metropolitan	International exchange– On the Job Training
Experimental laboratories	Positive displacement	
Automotive IDS	Fast and connected transport	
Battery Sharing	Buses on network	
Energy matrix in response to markets	Eletrification	

Figure 21: Ideas-Partnerships Suggested at the Automotive-IT Workshop
Source: Own elaboration.

Name	Multidisciplinary environment for developing solutions for connected and sustainable vehicles	Urban space for vehicular experimentation	Shared battery (service)	Assistive technology	Electrification	Positive displacement	Integration between public sector, companies, universities, research centres, financial and development institutions
Brief description of the innovative idea / partnership	Development of an environment that stimulates to research, develop and test different communication technologies, allowing to evaluate and design different solutions for the connected and sustainable car context.	Infrastructure to evaluate: "controlled" urban space in order to evaluate technologies, equipment, applications and user experience through communication infrastructure (VAV, VAI, VAX), sensing (physical, logical) and several that enable the evaluation / experimentation.	Replacement of the infrastructure of electrical systems allowing the exchange of the battery of the vehicle.	App development that outlines the best routes to be done by people with special needs.	Electrification of municipal collective transportation, through the limitation of new concessions for the presence of diesel-powered vehicles (buses/van).	To update the Master Plan of the cities of the RMR, so that it stimulates the development of new centres within the city, causing it to reduce the flow of people in the daily life, making the neighbourhoods small cities with specific identity.	Establishment of a network of cooperation between industries and universities with the aim of: 1. Qualifying and retaining talent for industry; 2. Create a collaborative environment; 3. Intermediate the relationship industry-university - independent agent; 4. Prospecting projects; 5. Identify sources of funding.
Identification of the research components and where these capacities lie	This is a structuring action with government support that will initially have the challenge of assembling infrastructures in the medium term, but which will allow in the long term the development of several potential projects involving academia, ICT and companies.	Structuring action of long-term and incremental character. Creation of an attractive environment (of regional institutions and outside of Pernambuco and Brazil).	1) Development of higher energy density batteries: R&D project in the medium term; 2) Development of real-time communication in the short term; 3) Battery management systems in the short and medium term.	Need to develop in Porto Digital.	1) Bus designs adjustment; 2) Installation of the recharge points.	1) Universities (MDU / UFPE and GDLS / UPE); 2) Sebrae; 3) BELIEVE; 4) CAU; 5) Aries.	1) Anchor industries and Systems; 2) University Innovation directorates; 3) Universities (students); 4) IEL / FIEPE / SENAI / Sebrae; 5) SECTI; 6) Agencies for the promotion and financing of research and industries.
Regional forces on which the idea / partnership is built	1) Automotive chain (Ex: FCA); 2) Digital Port; 3) Excellence universities; 4) Technology Park (Parqtel).	1) RD&I in ICT, engineering, design, creative economy, in several institutions; 2) Recognised competence in urban planning; 3) Government sensitivity to innovation.	1) Higher energy density battery; 2) Real-time communication systems (battery monitoring); 3) Renewable energy systems to supply refills. UFPE, UPE, Moura Batteries, ICTs, ITEMM and concessionaires.	1) Programmers; 2) Association of disabled people; 3) ISI-TIC; 4) Digital Port; 5) City Hall of Recife.	1) City halls; 2) CTTU; 3) Great Recife; 4) Assemblers; 5) public ICTs.	1) State government; 2) Prefectures.	1) Presence of the FCA and related firms in the region; 2) Presence of Innovation Directories in universities; 3) There is a convergence of interests among the actors involved; 4) "Interiorisation" of universities; 5) Development agencies available; 6) Knowledge in IT; 7) Competences of universities in IT, Metallurgy, electronics, production engineering, etc.
Needs / challenges that the idea can help solve	This strategy will foster new entrepreneurship in several areas of knowledge, through start-ups and companies, leveraging the generation of new applications, services and innovation in the automotive sector. In this way, it will be possible to have solutions in environments that do not have a good signalling infrastructure, roads, connectivity, among other aspects.	1) Training of human capital for global challenges; 2) urban mobility; 3) Security; Creation of new businesses; 4) Modernisation of the production chain.	1) Improvement of the quality of life in cities; 2) Improvement in the competitiveness of the logistics sector (cheaper fuel); 3) Substantial improvement for longer battery life; 4) Qualification of the workforce in these applications.	Optimise accessibility for people with special needs.	1) Emission of CO2 and particulate diesel; 2) Noise reduction.	1) Supply of public products and services; 2) Create a favourable environment for small businesses; 3) Reduce the impacts of population density; 4) Identify local demands; 5) Encourage new local businesses; 6) Creative economy.	1) Stimulate the application of knowledge to the automotive sector: manufacturing 4.0, metal-mechanics, embedded software, electronics, etc.; 2) Stimulate the transfer of technology; 3) Stimulate the implementation of the solutions for the industries; 4) Stimulate the partnership between companies and universities.

Identifying required partners / roles to play	1) Universities (UPE, UFPE, UFRPE) in the research and development of innovation; 2) ICTs (CESAR, FITEC, ITEMM, Cin) in creating new business models and companies (FCA, SERTELL, operators) to enable lead to the market. In addition, CNT as a regulator of potential automotive solutions.	1) Universities; 2) Public sector; 3) Industry.	1) UPE, UFPE, ITEMM: Research and development of these technologies; 2) Moura: Manufacturing and infrastructure (Financing); 3) FACEPE and BNDES: financing.	1) SECTI - Developer next to the Digital Port; 2) Associations; 3) Programmers.	1) ITEMM	1) Prefectures: Implementation of the master plan; 2) Local associations / leaderships: identifying needs; 3) Sebrae: identifying new opportunities and strengthening local businesses; 4) Universities: research support and architectures appropriate to the neighbourhoods.	1) Automotive industry: promote demand for research projects, provision of infrastructure for research, intermediary international partnerships; 2) Universities: qualify students and develop research projects; 3) Development agencies: providing financial support for student qualification and project development; 4) Government bodies: policy animator / articulator.
Estimated resources needed	1) Space for environment construction for testing, research and development; 2) Human capital; 3) Purchase of equipment (definition, maintenance); 4) Governance to maintain management.	Not specified.	1) Resources for R&D in the technologies involved; 2) Creation of a mobility laboratory to test the impact of the project on the network; 3) Resources for implementing a pilot project.	Not specified.	Not specified.	1) technical professionals specialised in urban planning (02), economic development (01) and local (01), sustainability (01); 2) Financial resources: approximately R $ 110,000 (around 27,500 €) divided into 03 stages (1. construction / needs and expectations of stakeholders, 2. structuring of the project, 3. articulation to make feasible the execution of the project)	Not specified
Next Steps	1) Identify potential partners (national and international); 2) Definition of potential subprojects with partners; 3) Elaboration of infrastructure project indicating all the necessary resources for implementation; 4) Execution.	1) Articulation of partners; 2) Detailing and developing the idea; 3) Feasibility of project financing; 4) Choice and preparation of urban space.	1) Creation of an electric mobility laboratory to bring together all the processes of a pilot project.	1) To raise possibilities for inclusion in a government program; 2) Take steps to roll out; 3) To raise problems, needs and challenges of users; 4) Raise costs.	1) Submission of proposal to the selection of urban mobility, through governmental articulation; 2) Raising demands and costs in Recife.	1) Execution of pilot plan and identification of project bottlenecks and opportunities / PDCA; 2) Change / approval of new master plan for a pilot region; 3) Project approval.	1) Industry: listing the demands for capacity building, development and research; 2) University: list demands; 3) Meeting between Industry, University and SECTI / government - the government will articulate with the parties and arrive at a result that satisfies all, including the funding theme; 4) Signature of term of cooperation between the parties with the competences distributed between the parties - this term of cooperation would be the initial NETWORK, in which the demands of each actor and what each one will contribute will be listed; 5) The physical space would be in universities and in industries.

Table 4: Development of the priority ideas-partnerships in the Automotive-IT STI
Source: Own elaboration.

In summary, it is possible to verify two predominant tendencies in the innovative ideas generated by the participants of the Entrepreneurial Discovery workshop for the Automotive-IT sector: on the one hand, a strategic commitment towards the technological and app development, at the service of improving the effectiveness of the products/services and increasing the effectiveness of the models and; on the other hand, a bet on the collaboration between actors that should work in three levels – multidisciplinary collaboration, equipment and knowledge sharing, in order to increase the potential for developing the ideas and innovative capacity of the sector

Figure 22: Automotive-IT EDP workshop in Recife
Source: SECTI-PE

The identified ideas-partnerships have the potential to be developed and instigated by innovation policies in Pernambuco in subsequent phases of RIS3-PE implementation.

(More information, see Deliverables 7 and 9 - Entrepreneurial Discovery - Workshops Report, October 2017)

5

Lessons for the Implementation of RIS3-PE

The experience of the different Member States of the European Union is quite diverse, but it shows that the concentration of resources based on the logic of smart specialisation and the encouragement of local actors to delimit specific priorities defined through processes of entrepreneurial discovery can produce relevant results to stimulate the production of knowledge and innovation. The RIS3 experience across Europe has favoured collaborative projects between universities and industry, creation of new technology-based companies and logics of internationalisation. These results have had impacts that spread throughout the territory, promoting more and better jobs, value chains that generate greater added value, that benefit the population as a whole.

The initial formulation of a RIS3 needs an in-depth process of evidence generation to assist in the policy design - it is critical to prepare studies on the dynamics of innovation and events for entrepreneurial discovery. It is important to mobilise the strategic players for RIS3, gaining their trust, but it is also necessary to be very careful to not disappoint them. To this end, models of shared governance must be implemented and assume actual importance in the selection and allocation of resources. Empowering innovation actors and governance bodies is critical. Many of the problems of implementing RIS3 in Europe also result from deficits in public administration and not just limits of the business fabric. RIS3 is not done by itself. In addition to the need for financial resources, it is crucial to create local RIS3 facilitators who can push the key strategic projects and develop appropriate monitoring mechanisms to understand whether RIS3 is being adequately implemented.

For the tropicalisation of the RIS3 framework, there are still other limits to which it is important to respond so that the implementation of strategies of this type can be successful. A first limit is that, contrary to what happened in the European case, there is no continental cross-cutting instrument in Brazil such as the Cohesion Policy, which allows large-scale financing of interventions in the selected priorities of smart specialisation, nor does it attribute to the strategy of specialisation a conditionality character to access public funds. At the same time, statistical information deficits continue to exist for the creation of a solid base of evidence, particularly as it goes down to subregional levels. An approach to RIS3 in Brazil cannot fail to take into account differences in institutional terms, economic performance, technological intensity and social innovation needs between the north and south of Brazil. Domain prioritisation (top-down and bottom-up with entrepreneurial discovery processes) should be carefully defined in order to avoid the temptation of public S&T stakeholders to over-limit the choices and institutional sequestration of RIS3 priorities by actors with more power, such as large multinational companies, universities and other scientific research entities that are dominant in the territory.

In Pernambuco, Phase 2 of RIS3 was a crucial contribution in producing a stronger evidence base for policy-making, promoting methodologies and experimental events for entrepreneurial discovery, and ultimately helping to understand the potential of tropicalisation of smart specialisation.

The different types of evidence collected - with on-site visits, interviews, questionnaires, EDP workshops - have generated consistent understandings, facilitating the elaboration of a short list of general recommendations that can be followed to facilitate the development and

implementation of RIS3-PE. These principles may be relevant and transferable to other Brazilian States.

Contextual Recommendations (beyond the scope of RIS3 intervention):

- Structure the conditions for government initiatives to transcend the political cycles of the administration that created them.
- Formulate solutions for the improvement of water management.
- Increase public security
- Develop mobility with new transport networks.
- Reduce the fiscal burden at all levels, as well as reduce the bureaucracy of the public machine.

Recommendations for SPIn:

- Define a collective shared vision on the future of the State
- Select a more limited number S&T+I priority domains.
- Create an animator (or reinforce this function within the system) for the promotion of innovation at the State level.
- Promote the articulation and cooperation of the actors of innovation in the different territorial systems of innovation and at the State level.
- Encourage a permanent process of participatory governance, involving universities, government, companies and society.
- Stimulate the culture of innovation in university entrepreneurs and researchers.
- Prepare higher education graduates for the needs of the market by structuring offers related to emerging technological areas.
- Propose an Innovation Pact involving the State Government and the various actors of the Innovation System of Pernambuco.

Specific Recommendations to Facilitate the Implementation of RIS3:

- Measures to connect RIS3 framework with ongoing policies and mechanisms.
- Increased support and extra evaluation to proposals linked to ideas-partnerships identified in RIS3.
- Specific announcements for projects related to priorities identified in RIS3-PE.
- Launching sectoral forums and other governance mechanisms planned for RIS3-PE.

In short, smart specialisation can be an interesting framework for reflecting on the future of regional policy and innovation in Brazil.

The strategic vision for Pernambuco must aim to transform this State into one of the most competitive regions of Brazil in two decades, capable of producing high value-added goods and services, generating better jobs, attracting talent, using innovation, scientific knowledge and shared governance as instruments to strengthen an economy anchored in the sector of innovation technologies that will stimulate developments in a number of areas such as agri-food, automotive,

metal mechanics and Clothing, promoting the transition to a sustainable socio-economic paradigm.

But implementing a RIS3 is just one possible way forward for this vision. It is not an end in itself. It is hoped that some of the reflections and ideas generated in Phase 2 of RIS3-PE may be relevant to the design of a true RIS3 in Pernambuco and stimulate a new paradigm for the definition of public policies in Brazil.

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Conferência de Lançamento "Projeto RIS3-Pernambuco"
Recife, 20 de março de 2017 | SECTI-PE
PROGRAMAÇÃO

09:00 – 09:30	Abertura
	Mesa de abertura composta por: Secretária de Ciência, Tecnologia e Inovação do Estado de Pernambuco – Lúcia Melo; Embaixador da União Europeia - João Gomes Cravinho Secretário de Governo da Presidência da República – Henrique Villa Ferreira, Secretário de Desenvolvimento Regional – Marlon Carvalho Cambraia
09:30 – 09:40	Coordenador Geral de Monitoramento e Avaliação de Políticas Regionais do Ministério da Integração Nacional – Paulo Pitanga do Amparo
09:40 – 09:50	Especialista do "Joint Research Centre" Sevillha - John Edwards
09:50 – 10:40	A Estratégia de Ciência, Tecnologia e Inovação para Pernambuco (ECT&I-PE) e sua articulação com o Projeto RIS3-PE (Lúcia Melo, SECTI)
10:40 – 11:00	Coffee-break
11:00 – 12:00	A metodologia RIS3 como ferramenta de apoio ao desenvolvimento regional na União Europeia e na América Latina (Jaime del Castilho, INFYDE)
12:00 – 13:00	Apresentação do Projeto RIS3/PE (Hugo Pinto, CES-UC)
13:00 – 15:00	Intervalo para almoço

[Parte da tarde e restantes dias relativos a vistitas de estudo]

Conferência "Oportunidades e Desafios à Aplicação do Enfoque de Especializações Inteligentes - RIS3 ao Contexto Regional do Brasil"
Brasília, 16 de Novembro de 2017 | CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico
PROGRAMAÇÃO

08:30 - 09:00	Credenciamento
09:00 - 09:30	Abertura do evento
	[Ministério da Integração Nacional (MI); Ministério da Ciência, Tecnologia, Inovações e Comunicações (MCTIC); Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq); Instituto Brasileiro de Informação em Ciência e Tecnologia (IBICT); Centro de Gestão e Estudos Estratégicos (CGEE); e representantes da Comissão Europeia (DG REGIO e Delbra)]
09:30 - 10:30	Especialização Inteligente: desafios e oportunidades para as políticas regionais de inovação [Professor Dominique Foray]
10:30 - 10:45	Coffee break

10:45 - 11:15	Perguntas
11:15 - 12:00	RIS3 na Europa: experiências e lições aprendidas [Javier Gomez - JRC Sevilla]
12:00 - 12:30	Perguntas
12:30 - 14:00	Almoço
14:00 - 15:00	RIS3 Pernambuco: experiências e lições aprendidas [Professor Hugo Pinto (CES, Universidade de Coimbra) e Dra. Lucia Carvalho Pinto de Melo (SECTI-PE)]
15:00 - 15:30	RIS3 Brasília: experiências e lições aprendidas [Paulo Egler e Neantro Saavedra-Rivano – IBICT]
15:30 - 16: 0	Perguntas
16:00 - 16:30	Coffee break
16:30 - 17:00	Projeto sobre Especialização Inteligente – Programa Diálogos Setoriais UE-Brasil [Cristiano Cagnin (CGEE), Dominique Foray, Paulo Egler (IBICT) e Paulo Pitanga (MI)]
17:00 - 17:30	Perguntas
17:30	Encerramento do evento

Other Relevant Related Events:

Special Session, 24º Congresso da APDR, Covilhã, 6-7 July 2017, topic "Territorial Innovation Models, Smart Specialisation and Public Policies" co-organised by Hugo Pinto, Paulo Neto, Maria Manuel Serrano e Ana Cristina Fernandes

http://www.apdr.pt/congresso/2017

International Conference on Local Development, 25-27 May 2017, Campus de Gambelas, Faro (Portugal), included roundtable on Smart specialisation, co-organised with the JRC

http://cieo15.wixsite.com/localdev2017award,

Entrepreneurial Discovery Process, in Caruaru and Recife, 26 e 27 July 2017

http://ces.uc.pt/pt/agenda-noticias/destaques/2017/ces-colabora-na-definicao-da-estrategia-de-especializacao

Scientific Presentation Related to the Projects:

Tropicalizar as estratégias de especialização inteligente? Reflexões a partir do caso brasileiro, 1º Encontro Anual de Economia Política, 25-27 janeiro 2018, Lisboa, Portugal.

¿"Tropicalizar" las Estrategias de Especialización Inteligente? Una Reflexión a partir de Pernambuco (Brasil), XXXII Congreso internacional XXXII Arethuse, 21 September, Jaén, Spain.

Para uma Estratégia de especialização inteligente no Estado de Pernambuco: Uma reflexão inicial, Special Session no 24º Congresso da APDR, Covilhã, julho 2017.

Smart Specialisation and the Entrepreneurial Discovery: Mapping Regional Priorities with Network Analysis, International Conference on Local Development 2017, maio 25-27, 2017, Faro, Portugal.

Smart Specialisation and the Entrepreneurial Discovery: Mapping Regional Priorities with Network Analysis, Interdisciplinarity in Social and Human Sciences, II International Congress, 11 - 12 maio 2017, Faro, Portugal.

Appendix 2
List of Deliverables

T1 - Deliverable 1 Inception report

T1 - Deliverable 2 Position paper about RIS3 and EDP

Pinto, H., Nogueira, C., Carrozza, C. & D´Emery R (2018) Smart Specialisation and the Entrepreneurial Discovery: A New Approach to Design Structural Change, In: Luísa Cagica Carvalho, Conceição Rego, Raquel Lucas, M. Isabel Sánchez-Hernández, Adriana Noronha (orgs.) "Entrepreneurship and Structural Change in Dynamic Territories - Contributions from Developed and Developing Countries", Springer.)

T1 - Deliverable 2a Report with workshop / visits main conclusions

T2 - Deliverable 3 Governance model report

T3 - Deliverable 4 Report of Evaluation of territorial resources in S&T+I

T3 - Deliverable 5 Report with Comparative Case Study

T4 - Deliverable 6 Report Innovation and knowledge needs and potential of TIS Clothing

T4 - Deliverable 7 Summary report of workshop

T5 - Deliverable 8 Report Innovation and knowledge needs and potential of TIS Automotive-IT

T5 - Deliverable 9 Summary report of workshop

T6 - Deliverable 10 Synthesis report

T7 - Deliverable 11 Article with conclusion from the project

Two articles submitted: (Pinto, H, Nogueira, C., Laranja, M. & Edwards, J. (2017). A tropicalização da especialização inteligente: Considerações iniciais e falhas sistémicas de inovação para o desenvolvimento de uma estratégia em Pernambuco (Brasil), working paper; Pinto, H, D'Emery, R & Nogueira, C. (2017). Especialização Inteligente e a Descoberta Empreendedora em Pernambuco: Perspetivas dos Atores nos Sistemas Territoriais de Inovação de Confecções e de Automotivo-TI, working paper.

T8 - Deliverable 12 Final Report "For a vision of the Smart Specialisation Strategy in selected innovative territories of the State of Pernambuco"

Pinto H (2017) *RIS3-PE - For a vision of the Smart Specialisation Strategy in selected innovative territories of the State of Pernambuco,* Final Report, Centro de Estudos Sociais da Universidade de Coimbra: Coimbra.