



# iText DITO: Accelerating document design and generation for PEA employee benefits

Learn how iText DITO, our collaborative document solution, enables the Provincial Electricity Authority of Thailand to easily design, modify and generate data-driven employee benefits documents and reports for the PEA Life app.

## BACKGROUND

**The Provincial Electricity Authority (PEA) is a government-owned enterprise which provides a standardized electricity service throughout Thailand. Established over 60 years ago, it is an organization which is extremely well respected by the Thai people and by other government units.**

PEA is currently undergoing a digital transformation of the organization, in effect creating a “PEA Digital Utility”. To help achieve this goal the organization created the KEEN14 Policy. KEEN stands for “Keep Improving Existing Business, Enhance New Business, Employ Innovation and Technology, and Nourish Human Resources”, and the policy is comprised of 14 strategic practices. These strategies cover essential operations across the organization, including organization and grid system development, new business development, innovation and digital technology, human resource development, and sustainability built to fulfill customers’ and market requirements.

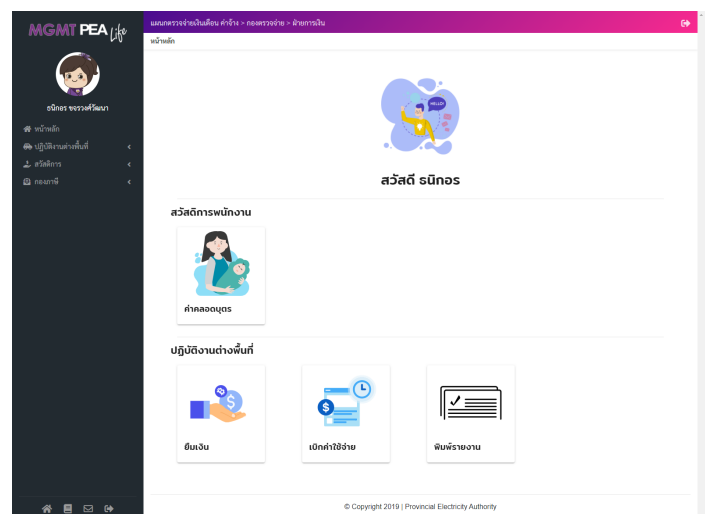
The challenges associated with changes in technology and government policy have already caused significant impact in the local electricity industry and continue to do so. PEA is committed towards embracing these changes by aiming for excellence in the Electrical Energy Business, meeting the expectations of customers, and contributing value to the society and environment by using digital technology. The combination of all these things work together to take PEA further down the road to becoming a “PEA Digital Utility”.

## GOALS

The benefits of PEA’s digital transformation are not limited to the general public; PEA also has responsibilities to its own employees who are customers in their own right. Part of these responsibilities is the administration and payment of staff welfare benefits and payments, and PEA’s internal development team was tasked with the digitalization of this process for PEA’s approximately 36,000 employees.

The PEA developer team began work on developing a system to achieve this task. The aim was to provide an easy-to-use application which allowed employees to apply for and receive various benefits, including travel reimbursements, income tax calculations, and many more.

The application they developed became known as “PEA Life”, and as part of its remit it needed to be able to distribute forms to be filled out by employees, generate report summaries, and also issue secure salary slip documents. For convenience and accessibility, it was developed as a mobile app for Android and iOS.



An example screen from the PEA Life app showing an employee entitled to claim maternity benefits

## CHALLENGES

PEA's developer team decided the reports and salary slip documents would be generated as PDF documents, which is a simple task for a PDF library such as iText 7. However, an additional challenge was the design and processing of the specific forms required for each of the employee benefits. While this could also be achieved with the iText PDF library, they were looking for a quicker and easier way to create the required documents. As an existing iText customer, they approached iText through Inbatek, our local partner in Thailand, to see what we could suggest.

## SOLUTION

PDF has become the standard format for application forms and similar documents. Indeed, one of the earliest uses of the PDF format was for US Government tax forms. As such, a common use of the iText PDF library is to create and manipulate such documents, with plenty of support for form fields in its high-level API. Alternatively, with the iText 7 add-on pdfHTML, you can ease the development of forms by creating and styling templates for PDF using HTML and CSS, allowing more flexibility in the development process.

At the time PEA contacted iText however, we were developing the first version of iText DITO, which seemed to be the perfect solution for their needs. iText DITO was conceived as a way to combine the backend PDF generation capabilities of the iText PDF library with an intuitive template designer component, enabling users to create documents more easily. Using the browser-based frontend, you can insert document elements such as text boxes, form fields, tables, images and more, with powerful data binding capabilities to dynamically inject data as and when required.

A key additional benefit of iText DITO for PEA's use case was the integration of the technology used for our iText 7 add-on pdfCalligraph, which extends the wide language support of the iText 7 Core library to allow the accurate rendering and processing of complex writing systems and scripts in PDF documents such as Thai, Devanagari, Khmer, and many more

”

“Using iText DITO greatly reduces the time spent on the design of the documents and reports we generate. In addition, it allows us to easily modify templates as and when required.”

PEA DEVELOPMENT TEAM



After we demonstrated what was already possible in iText DITO, and what we had planned for its release, PEA decided to integrate it into their workflow for the PEA Life app. In turn, we took feedback from them to inform our roadmap and development, enabling additional functionality such as support for Docker deployments and generating password-protected PDF documents.

In addition, their feedback helped us to increase the PDF generation performance of the iText DITO SDK/API, as well as general improvements and refinements to the Thai writing system rendering for both iText DITO and pdfCalligraph.

## HOW IT WORKS

The PEA development team designs the templates for the PEA Life app's documents and reports in the iText DITO Editor. The iText DITO Editor's interface enables them to easily create templates which incorporate the necessary document elements, bind data to specific elements such as tables, and dynamically insert data in JSON format from the employee database upon document generation.

In addition, conditional content and styling can be defined, data calculations and filtering applied, and charts and barcodes generated as and when required. iText DITO provides wizards to help with these more complex operations, including a PDF/UA compliance wizard which assists with the creation of documents to comply with accessibility regulations such as Section 508 in the US.

You may also want to post-process documents to perform other operations. Whether for simple tasks like splitting or merging PDFs, or to utilize more advanced PDF features. For example, PEA uses iText 7 Core to produce encrypted pay slips to be delivered by the PEA Life app, but another use might be to integrate PAdES (PDF Advanced Electronic Signatures) compliant digital signatures into documents. PDF digital signatures ensure the integrity and authenticity of documents with non-repudiation and long-term validation. Digital signatures are particularly useful for contracts and other legally-binding agreements.

The pdfOCR add-on provides a way to automate the OCR (optical character recognition) process and integrate it into document workflows. The API is simple to use and supports different OCR engines with little or no effort. It can process single images or a list of images at once, in BMP, PNM, PNG, JFIF, JPEG or TIFF formats. iText pdfOCR can also generate PDF/A-3u compliant files, the accepted standard for long-term archiving and preservation of PDF electronic documents.

เอกสารบัญชี	เอกสารอ้างอิง	รหัสบัญชี	ชื่อบัญชี	ฐานข้อมูล/WBS/โครงการ	รายละเอียด	จำนวนเงิน
สำเนาที่ 1	Vendor รหัสซื้อเจ้าหน้าที่	EM00498143	ปารวรณ์ ธรรมาเทศ	12.06.2021-15.06.2021	กฟฟ.บ.1 / ทดสอบภาษี	
	BZ21000030		เงินปัน	ZD01011030		-4,445.00
2000002259	KZ21000062	52030010	ค่าเบี้ยเลี้ยงหน้จ่าย ไม่มี VAT - ค่าเบี้ยเลี้ยง	ZD01011030	ค่าเบี้ยเลี้ยง / 12.06.2021-15.06.2021	1,080.00
2000002259	KZ21000062	52030010T	ค่าเบี้ยเลี้ยงหน้จ่าย ไม่มี VAT - ค่าเบี้ยเลี้ยงส่วน	ZD01011030	ค่าเบี้ยเลี้ยง / 12.06.2021-15.06.2021	180.00
2000002305	TESTVAT01010101	52030010	ค่าที่พักจ่ายจริง VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าที่พักจ่ายจริง / 12.06.2021-15.06.2021	820.00
2000002305	TESTVAT01010101	12950010	ค่าที่พักจ่ายจริง VAT - ยอดภาษี		12.06.2021-15.06.2021	57.40
2000002306	TESTVAT02020202	52030010	ค่าที่พักจ่ายจริง VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าที่พักจ่ายจริง / 12.06.2021-15.06.2021	640.00
2000002306	TESTVAT02020202	12950010	ค่าที่พักจ่ายจริง VAT - ยอดภาษี		12.06.2021-15.06.2021	44.80
2000002297	TEST0303030303	52030010	ค่าที่พักจ่ายจริง VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าที่พักจ่ายจริง / 12.06.2021-15.06.2021	900.00
2000002297	TEST0303030303	12950010	ค่าที่พักจ่ายจริง VAT - ยอดภาษี		12.06.2021-15.06.2021	63.00
2000002302	TESTAIR04040404	52030010	ค่าพาหนะมี VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าพาหนะ / 12.06.2021-15.06.2021	2,500.00
2000002302	TESTAIR04040404	12950010	ค่าพาหนะมี VAT - ยอดภาษี		12.06.2021-15.06.2021	175.00
2000002303	TESTOIL05050505	52030010	ค่าเชื้อเพลิงมี VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าเชื้อเพลิง / 12.06.2021-15.06.2021	1,100.00
2000002303	TESTOIL05050505	12950010	ค่าเชื้อเพลิงมี VAT - ยอดภาษี		12.06.2021-15.06.2021	77.00
2000002304	TESTOIL06060606	52030010	ค่าเชื้อเพลิงมี VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าเชื้อเพลิง / 12.06.2021-15.06.2021	800.00
2000002304	TESTOIL06060606	12950010	ค่าเชื้อเพลิงมี VAT - ยอดภาษี		12.06.2021-15.06.2021	56.00
2000002266	KZ21000062		พักค้าง เงินปัน - เงิน Clear			0.00
					ยอดรวมตามใบแนบ	8,493.20
					หักเงินปัน	-4,445.00
					ยอดรวมทั้งสิ้น	4,048.20
สำเนาที่ 2	Vendor รหัสซื้อเจ้าหน้าที่	EM00501537	พรนิจา เดชชาวิธานนท์	12.06.2021-15.06.2021	กฟฟ.บ.1 / ทดสอบภาษี	
						-0.00

เอกสารบัญชี	เอกสารอ้างอิง	รหัสบัญชี	ชื่อบัญชี	ฐานข้อมูล/WBS/โครงการ	รายละเอียด	จำนวนเงิน
2000002273	KZ21000064	52022020	ค่าเบี้ยเลี้ยงหน้จ่าย ไม่มี VAT - ค่าเบี้ยเลี้ยง	ZD01011030	ค่าเบี้ยเลี้ยง / 12.06.2021-15.06.2021	1,080.00
2000002273	KZ21000064	52022020T	ค่าเบี้ยเลี้ยงหน้จ่าย ไม่มี VAT - ค่าเบี้ยเลี้ยงส่วน	ZD01011030	ค่าเบี้ยเลี้ยง / 12.06.2021-15.06.2021	180.00
2000002298	TEST1111111111	52022030	ค่าที่พักจ่ายจริง VAT - ยอดไม่รวมภาษี	ZD01011030	ค่าที่พักจ่ายจริง / 12.06.2021-15.06.2021	890.00
2000002298	TEST1111111111	12950010	ค่าที่พักจ่ายจริง VAT - ยอดภาษี		12.06.2021-15.06.2021	62.50

A PEA Life report detailing an employee's reimbursement for travel expenses.

## RESULT

After integrating iText DITO into their workflow for PEA Life, the application was initially deployed in the first quarter of 2021 with regular updates since then. In turn, PEA's development team has benefited from our quarterly release schedule for iText DITO, with many important additions to its feature set.

”

“We chose iText DITO because of its ease of use for designing the document forms. We also really love the local support we receive from Inbatek, and the support from iText.”

PEA DEVELOPMENT TEAM



One of the biggest recent additions to iText DITO is the iText DITO Manager, introduced in version 2.0. This offers an integrated workspace to easily manage templates and related resources, data collections, SDK instances, user roles and more. The Manager and Editor have been closely integrated to provide a unified interface for template creation and management, and like the SDK/API are available as containers for Docker deployments.

This and other improvements to iText DITO make it an even more collaborative document solution. Since the PEA Life app has only an 8-person development team, being able to work together to produce document templates is an important benefit. Templates can also be modified or updated without any input from developers. iText DITO's ease of use means such tasks can be achieved without any needing any coding experience, so developers can focus on the important things and leave design to designers.

Overall, PEA is very happy with how iText DITO has enabled them to work faster and make template development and maintenance easier. As the PEA Development Team told us,

“We chose iText DITO because of its ease of use for designing the document forms. We also really love the local support we receive from Inbatek, and the support from iText.”

Indeed, iText's world-class support is one of the key benefits of a commercial license. As well as relieving you from the AGPL requirements of iText 7 and our open-source add-ons, you also gain access to our Jira Support Desk with professional help and advice provided around the world and round the clock. We'll assist you throughout your development and deployment, with expert assistance from our friendly and knowledgeable support staff.

If you're interested in seeing what iText DITO has to offer, you can request a free trial or even receive a guided tour from our team to demonstrate its capabilities

## ABOUT PEA

The Provincial Electricity Authority (PEA) is a government enterprise administered by the Ministry of Interior. Established in 1960, the responsibilities of the PEA are the provision of a standardized electricity service, and to operate other related Electrical Energy Businesses to achieve customer satisfaction on the available products and services.

We would also like to thank Inbatek, our partner and reseller in Thailand who work tirelessly to support our customers in Thailand, Laos, and Myanmar. They provide a consultancy role in PDF related trends and developments, and offer custom-built software development, branding and interface development services for customers in the public and private sectors.

## ABOUT US

iText is a global leader in innovative award-winning PDF software. It is used by millions of users - both open source and commercial - around the world to create digital documents for a variety of purposes: invoices, credit card statements, mobile boarding passes, legal archiving and more.

iText works and works well. Our customers choose iText because of our world-class software quality, and our reliable mature, proven technology in the iText code library iText 7 Suite. We are recognized as a global thought leader and innovator in PDF solutions and functionalities. As an open source code library, iText PDF can be embedded into the document solution workflows of various industries and their applications.

### Europe, Middle East, Africa & CIS

AA Tower  
Technologiepark - Zwijnaarde 122  
9052 Zwijnaarde  
Belgium

✉ sales.isb@itextpdf.com  
🌐 www.itextpdf.com  
📞 +32 9 298 02 31

### Americas

530 Harrison Ave,  
Second Floor  
Boston, MA 02118  
United States

✉ sales.isc@itextpdf.com  
🌐 www.itextpdf.com  
📞 +1 617 982 2646

### Asia & Oceania

Republic Plaza  
9 Raffles Place, Level 6,  
Republic Plaza 1  
Singapore 048619

✉ sales.isa@itextpdf.com  
🌐 www.itextpdf.com  
📞 +65 6932 5062