SAP SECURITY AUTOMATIONS

A DETAILED LOOK INTO WAYS YOU CAN MAKE YOUR DAY TO DAY ADMINISTRATION OF SAP SECURITY MORE EFFICIENT, MAKING YOUR LIFE EASIER AND SAVING YOUR ORGANISATION MONEY

AN ORANGE PAPER

BY

PUMPKIN CONSULTING

WHO ARE PUMPKIN CONSULTING?

Pumpkin began life back in 2004, way before IT security or cyber became cool.

We were amongst the pioneering generation that professionalized SAP security and helped shape it into what it is today which gives us a unique perspective on the full range of problems clients can encounter with SAP security.

What we do ultimately comes down to two things; managing the risk of running a key financial system like SAP and making sure security doesn't get in the way of you managing your business or perish the thought, stop the business from operating.

Our vast experience makes us the perfect partner for all technical implementation requirements, long term and day-today support and audit remediation works. Unashamed people pleasers, we're a friendly bunch, work with a smile on our faces and genuinely want and do the best thing for our clients.

ORANGE PAPER SUMMARY

OVERVIEW

This orange paper (we don't do white papers) provides some informal yet hopefully informative high-level ideas about ways you can reduce the day-to-day burden of administering SAP security. We share the details of some of the most effective automations we've developed over the years.

WHO IS THIS ORANGE PAPER FOR?

If you're not involved in administering SAP security, this orange paper may prove to be effective "bedtime reading". If SAP security is your thing however, have a read, there'll be some tips you could take from it to make some of the more cumbersome administrative tasks you do that much easier.

CONTENTS

We'll explore various ways we've automated difficult or time consuming tasks. We focus on:

1. Our process for creating automations
2. Automations for administering SAP user accounts
3. Administering single role changes
4. Automating changes to composite roles
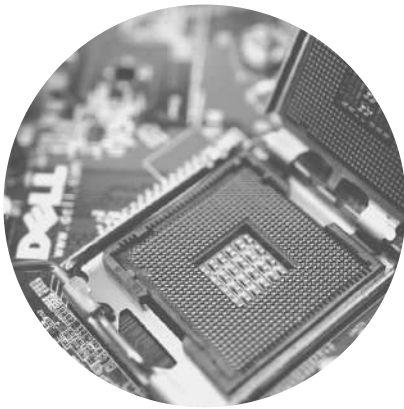5. Why custom built solutions are sometimes required

WARNING: THIS DOCUMENT COULD SAVE YOU SIGNIFICANT AMOUNTS OF TIME. YOU MAY NEED SOMETHING ELSE TO DO TO MAKE YOU LOOK BUSY.
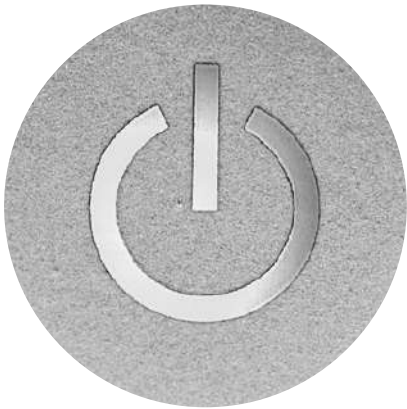
INTRODUCTION

TAKE ME THERE

OUR PROCESS

TAKE ME THERE

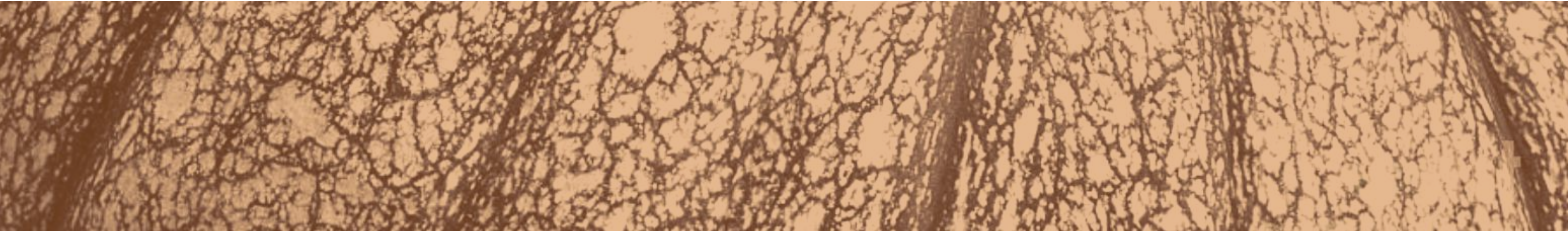**ADMINISTERING USERS**

TAKE ME THERE

ADMINISTERING ROLES

TAKE ME THERE

FURTHER READING

TAKE ME THERE

A QUICK INTRODUCTION

We're proud of the way we innovate for the benefit of our clients. Grab a coffee and have a read of our orange paper about the automations we've developed that save our clients time and money and reduce the risk of errors and omissions in numerous areas of day-to-day SAP security administrative tasks.

The main objective when automating a SAP security administrative process is to allow for fast and clean data processing instead of manual labour. This saves time, ensures quality and reduces costs.

All our developments are tools we've developed because there isn't an automated way to process the data we're targeting in the standard version of SAP, in terms of mass upload and data processing.

Our methods of mass update are completely safe and are based on Legacy System Migration Workbench (LSMW), part of the standard SAP system. We only use however the shell of this tool, reforming all of its internal workings to our own specific needs.
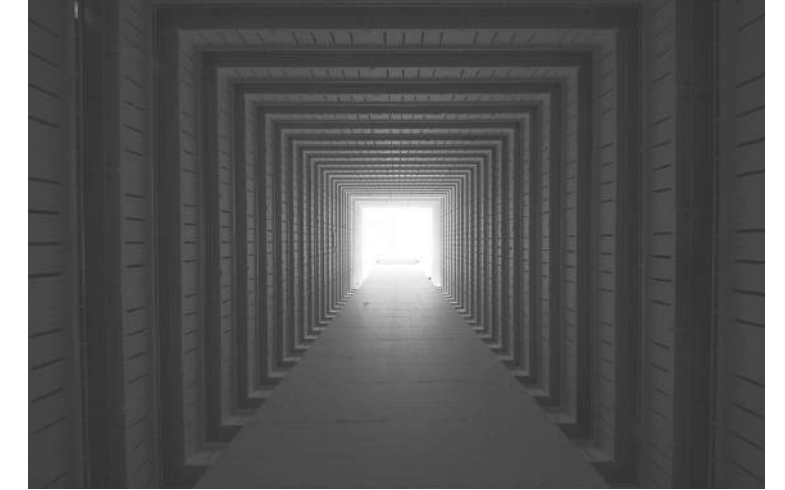
There's been talk over the years of LSMW being made obsolete but as of the date of publishing this orange paper, we don't know of any specific plans to do this. If ever this did come to bear, we have alternative ways to achieve all the same ends, worry not!

OUR PROCESS

Read on to see the steps we carry out to prepare a new SAP security automation.

1. Create the recording: We record an example of the specific action in the system that we want to automate which can be put on a loop where we can process it almost forever. With proper data preparation beforehand, we are able to create millions of new records of data that would normally take huge amounts of time to complete. Thanks to the automation we not only save the time of clients, but also their money and remove the human error aspect from the manual input.

2. Structure preparation and custom conversion rules: this is the step where we match the structure of the data file with the format that is acceptable by the target system. Using custom developed interfaces we make sure the date format is correct, that code pages match, that there are no "white signs" or empty characters present in the migration process and that every field has the correct length and will accept only the intended values.

3. Advanced custom conversion rules: here is where the big bang happens. This is the place for complex coding using loops, variable changes, function modules, fail safes, classes or custom tables. Thanks to bypassing standard screen recording with internal API calls we achieved a boost in performance and stability. Also hooking into standard tools allowed us to automate things that could never be automated with standard screen recording, we can skip lengthy on-screen processing and do almost any action we wish. We save time by not having to delve deeper into a repetitive task and use clean backend tools instead.

4. Testing and data upload: since an action that can be repeated millions of times can cause millions of errors that need to be corrected, we pay attention to every considerable detail in the scope of testing. We have rigorous testing methods and invest a lot of time and effort to hone out any potential rough edges. Preparation of dozens and dozens of test cases is an absolute must.

Note, the content in this paper is intended to give you some ideas of tasks you can automate yourself rather than getting into finite detail, you'd be here all day otherwise. If it's whetted your appetite for more, you must be a glutton for punishment so just get in touch, we'd be delighted to help.

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Automation applied to
an inefficient operation
will magnify the
inefficiency

BILL GATES

OUR AUTOMATIONS

A look into what's possible and indeed, what we've done over the years. This could all give you some ideas to implement yourself or for anyone needing some further detail, please just get in touch.

1. Modification of user accounts across the SAP landscape

Assigning SNC

Secure Network Communications (SNC) integrates SAPNetWeaver Single Sign-On (SSO) or an external security product with SAP systems. It is a parameter of a user's specific account, hidden like almost anything we discuss here, behind manual processing of multiple screens. With the use of already described methods, we are able to assign or remove this parameter from hundreds, thousand or even millions of users in a time that can only be described as lightning fast.

Create and copy users

Standard SAP has the ability to copy one user at a time, with a lengthy process of inputting a lot of details. The already described SNC, Name, Last Name, User Group, Validity Dates and many other fields in the user master record can be maintained at the press of a button. Here we need our advanced custom conversion rules in order for the system to accept our recording, due to a lot of on screen data and fields.

Change licence type for users

Over the years, we've been involved in countless exercises to review license types and conduct license audits which invariably results in mass changes to license types across numerous systems in the system landscape, sometimes covering hundreds of instances of SAP.

This is another parameter hidden inside multiple tabs and screens so we again use writing directly into the database tables for ultimate speed and convenience.

Reset password for users

A tool that saves a lot of time. Pretty self-explanatory and very time saving. Also with a hook into standard code we achieved a goal of mandatory password change when setup by admin tools.

Assign roles to users

This automation is a huge time saver where you want, for example, to remove or assign a certain set of roles from a group of test users and replace them with something entirely different.

We invested a lot of time and effort into this one, as what happens on the screen when you assign a role to a user is just the tip of the iceberg. There are multiple other tables and parameters that are updated in the process that are not visible, which however need to be taken into consideration.

The effort was more than worth it though; the impact of using this tool for large deployments of roles to users is that it saves you around 95% of the time it would normally take using standard functionality.

Compare user master record after role assignment change

The user master record comparison consists of three types of comparison.

1. The profile comparison and with this, the profiles of time-dependent role assignments are updated.
2. The composite role area which updates the role assignments defined in composite roles, that are added or deleted.
3. The organizational management comparison that generates the direct role assignments from the indirect role assignments of the organizational management model. This is a vital step after role/user assignment modification.

We're over half way through, stick with us for details of various automations we've designed for administering SAP roles

2. Modification of single roles

Create role short description

Sometimes the standard descriptions or roles need to be changed. We have a tool to address this in bulk for any large-scale changes required.

Create and copy users

Single roles contain authorization data. If you have some single roles to create an object, you can edit, create or delete that object based on authorization data defined. Like with the users, we create vessels that can be further enhanced using our other scripts. We can derive values from another role or input organizational levels of ours own.

Delete roles

Mass clean-up of roles. Like with everything else, there is no standard tool for this, which would allow bulk processing.

Create derived relationship

Derived roles refer to roles that already exist. The derived roles inherit the menu structure and the functions included (transactions, reports, Web links, and so on) from the role referenced. A role can only inherit menus and functions if no transaction codes have been assigned to it before. This is a complex process where our script checks for the existence of the roles, deletes the already existing derived relationship, deletes the role menu and profiles and assigns the new master, generating anew what has been deleted before.

Assign organizational levels to roles in column or row format

Organizational level is a very important field as far as role design is concerned. The basic concept behind having this in the role design is to have the same value across all objects for a given role, unlike any other authorization field which can have different values across different authorization objects.

The scripts where we assign organizational levels to roles are by far the most complex ones we have designed and implemented. In this case we use roles in rows and authorization values in columns in the entry file.

Clients can provide data in various formats, based on their internal preference so the development of this automation has been complex and can be done in row format also.

Edit transaction codes in roles

What are the transactions? These are defined as authorization objects, normally as a transaction code or TCODE. A user is not mapped directly to a transaction of course (or any other authorization object) they are mapped to a role which is in turn mapped to transactions and other authorization objects.

Other authorization objects may be represented as data in a transaction, like a company code. Another level of complexity is that transaction codes (and other values) can have wildcards, so a role may cover a set of transactions and that set may change over time as SAP changes (but not be visible as a static list of transactions on a role). Just like with organizational levels, we can modify these in bulk also.

Generate profiles for roles

The profile generator functionality is based on the use of roles. A role is a collection of activities that describe a specific work area. Generating profiles automatically provides the required authorizations for the selected functions.

Some of them already have values. After we finish our work with modifying organizational levels or transaction codes within roles, this is a sort of merge/check step.

3. Modification of composite roles

Assign single roles to composite roles

Composites consist of single roles, of course. Users that are assigned a composite are automatically assigned the associated single roles during the compare.

Composite roles don't contain authorization data. Setting up composite roles is useful for example if some of your users need authorization for several roles.

You can create a composite role and assign it to the users instead of assigning each user each required single role.

The row/column format here is the same to serve different needs, just like with the organizational levels, described previously.

Create composite role with short description

Just like with single roles, this time we prepare vessels ready to be filled with single roles.

Assign long description to roles

This one is tricky. Imagine a square chocolate cake. Looking at it from above it looks intact. Just like the long description field in SAP, which resembles the Notepad in Windows. However, in this case, the cake is carved up into tiles, invisible on screen, present in the backend system.

We needed to merge the cake, script moving onto the next line, de-attach the scroll panels and make sure the field gets updated properly even when not visible entirely on the screen.

A lot of work was involved here with what looks like a "simple" text field.

Delete composite roles

Like with users or single roles, here we can crush items that are not needed anymore. In hundreds, thousands or millions.

Set or remove NWBC flag for roles

A parameter, like the SNC for users. SAP NetWeaver Business Client (NWBC) is an SAP user interface (UI), presenting end users with a seamless integration of classic SAP GUI-based transactions and newly developed applications based on Web Dynpro ABAP.

In the desktop variant, a high-fidelity UI is offered to improve the user experience. NWBC provides the user with a typical, modern, desktop-based user experience.
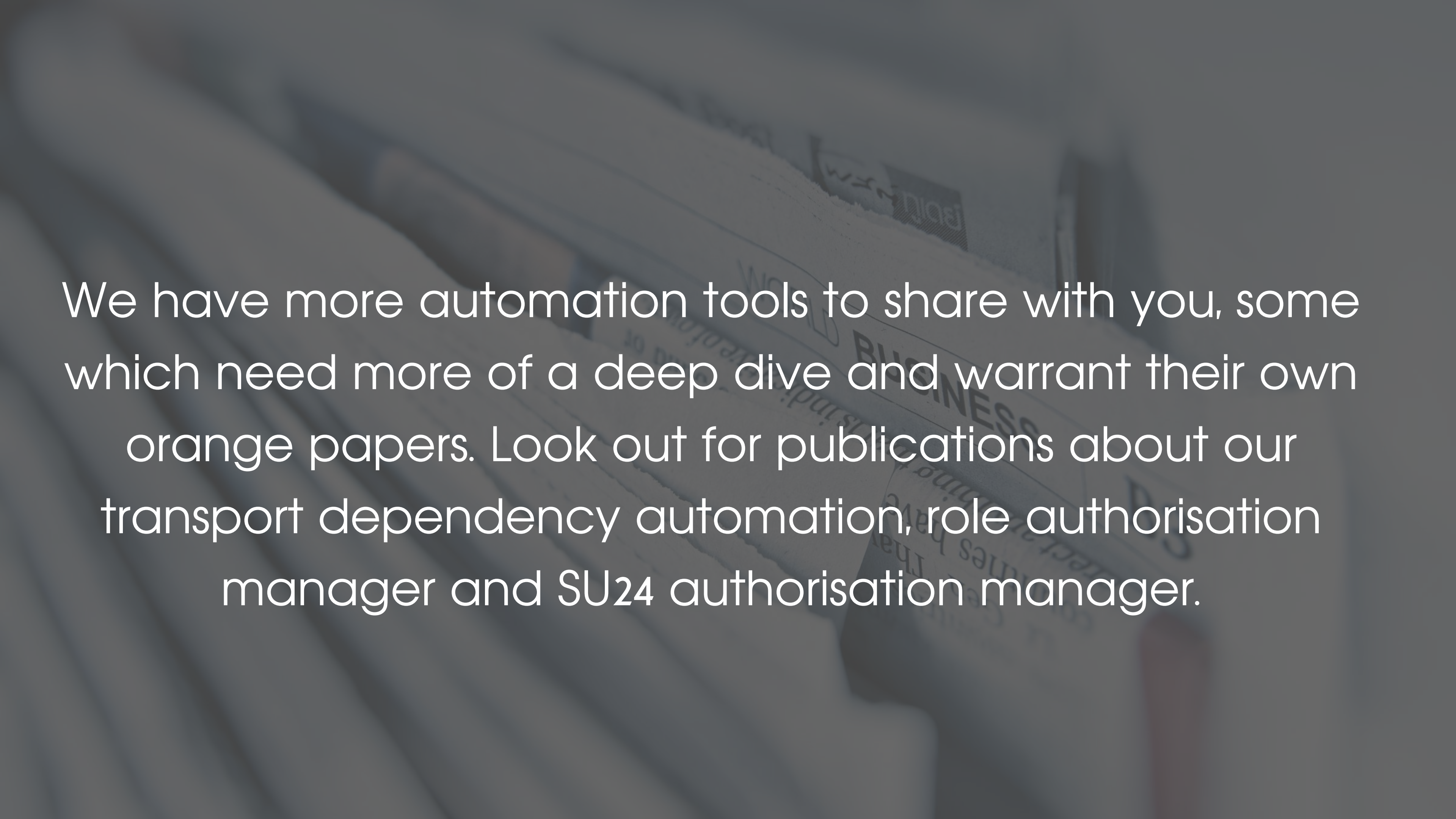
Here we can hide the menu of a specific single role from NWBC, Suite Page Builder and Fiori Launchpad.

FURTHER READING

SAP delivers lots of standard support tools but many organizations define processes that are not supported by them. These are typically scenarios that without automated custom-built tools can take significant amounts of time to complete and are very cumbersome to achieve. Often, even experienced consultants need to spend large amounts of time to understand the data connections, discover the complexity, and build the correct tools.

In our experience, it's sometimes like as soon as one tool is finally, a new challenge arises, so we go again. It's a tough life, eh?

We have more automation tools to share with you, some which need more of a deep dive and warrant their own orange papers. Look out for publications about our transport dependency automation, role authorisation manager and SU24 authorisation manager.

We hope you found some of these thoughts helpful. Our hope is that these informal, yet informative orange papers can provide some insight, tips and food for thought to point you in the right direction.

Of course, we would be lying if we didn't also want to blow our own trumpet and celebrate the Pumpkin way ultimately encouraging you to choose us to accompany you on your SAP authorisation improvement journey; we are a business after all.

Please do not hesitate to get in touch with us. We are as friendly as say we are or your money back.

About the author

Tomasz Lygan was one of Pumpkins first hire's and is a rare beast; a skilled Data Migration Consultant who's also an expert in SAP security, two for the price of one. It is therefore no surprise to find he is interested in SAP security automated solutions.
An interesting fact about Tomasz is that although it's not his first language, he can recite Hamlet in English.

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