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DIGITAL sovereignty needs SECURITY

By Oliver Winzenried, CEO and co-founder, Wibu-Systems AG

□ Tough, reliable, and maybe a little bigger and louder than it needs to be: The Ford F-150 is not just America's favorite truck, but seemingly emblematic for what the United States stands for. But in February 2021, production of Ford's flagship truck was hit by a problem that no car enthusiasts and only very few industry executives would have ever dreamed of only a decade ago: The global shortage of microprocessors forced a drastic reduction in production numbers. Production lines stopped, shifts were cancelled, and the car maker had to realize the same hard truth that many of its competitors also had to accept this past winter: The digital age knows no borders and no country, let alone a single company can be an island, an entity unto itself, set apart from the ups and downs of today's connected world economy.

With every incident of this nature, the calls grow for digital sovereignty. In 2019, the European parliament had already defined digital sovereignty as "Europe's ability to act independently in the digital world", a question of strategic autonomy. As the global microprocessor shortage shows, this may be a worthwhile aspiration, but it still remains a far-off ambition. At the same time, increasingly high-profile ransomware attacks,

now affecting even critical infrastructure of national importance, such as the May 2021 Colonial Pipeline attack, show that digital sovereignty cannot ever be realized under any isolationist terms, as not just markets and supply lines, but threats and attack vectors are also distinctly global. The challenge is clear: There can be no digital sovereignty without security, but that security cannot be understood only in terms of walls built and vulnerabilities patched. Instead, it has to be an evolving, open, and multi-disciplinary effort. It requires the will and the ability to not rely on other people, other countries, or other industries to do the work for you, but to keep pace with developments globally, in order to be sovereign and secure locally.

Wibu-Systems, the pioneering proponent of all things IT protection, licensing and security, has long understood this ambidextrous quality of digital sovereignty and security: The need to build up local, regional, national or supra-national resources, expertise and capable to be able to hold one's own ground and enforce one's own standards, and the simultaneous need to reach out to other actors, thinkers, researchers, and even competitors around the world to spark a mutually



beneficial conversation for greater IT security. It can be a hard sell, as security in and unto itself is not a product that you can collaborate on and then take to market. Instead, it is a process: An evolving technological answer to evolving technological threats. It is never finished, but requires constant care and close attention (and considerable investments). Poorly executed, it can be a nuisance for users and vendors alike. Done right, it can be a quiet, almost unnoticed asset for the product itself, be it a user-friendly licensing solution for an application or a dongle with market-leading encryption and security technology on board that can execute amazing IT protection feats in the background. Done even better, IT security can play a big part in enabling new business models, with licensing becoming a vital building block for subscription, pay-per-use, or add-on service models, as exemplified by Wibu-Systems' CodeMeter technology. But whatever the case may be: For IT security to be a genuine part of digital sovereignty, it has to counterintuitively remain open and collaborative, a community effort.

Karlsruhe, the historic baroque city in Germany's upper Rhine valley, has mastered this art of local excellence combined with cosmopolitanism since its foundation. Built as a model

community around the residence of the Margrave of Baden, it merged innovative ideas of urban planning with an early commitment to academic and technical excellence. The original Polytechnicum of 1825 has since evolved into the Karlsruhe Institute of Technology, and a unique research and enterprise ecosystem has developed around it, including Wibu-Systems, which was founded in the city three decades ago. To mark this milestone, the company recently brought an architectural vision to life that is a fitting expression of its commitment to local roots, combined with openness and shared progress: On a new campus near the former freight yards of the Rhine valley's arterial rail route, Wibu-Systems not only gave itself new head offices and production facilities, but also created the House of IT Security; a dedicated home, incubator and shared space for researchers, established enterprises, and aspiring young startups operating in the field of IT security. With almost 60,000 square feet of space for fixed-lease tenants or project teams, the House of IT Security is set to become a new focal point for Karlsruhe's vibrant IT





community. More than 4,000 IT companies are already based in the vicinity, far surpassing even Silicon Valley in terms of the number of enterprises per square mile. The greater region is also home to other global leaders of industry, like SAP, itself a partner of Wibu-Systems. It is regional super-clusters like these that will become essential for digital sovereignty to become a reality.

The new head offices of Wibu-Systems themselves are also true to the idea of digital sovereignty, with local excellence plus cosmopolitan openness. Over its three decades in the industry, the company's technology has evolved from its origins in licensing hardware, to cover a vast range of hardware, software and cloud solutions for software protection, licensing and security. Its progress has been powered by constant research and development, often in partnerships with academic institutions like the KIT, including fundamental research for example its Blurry Box encryption technology. With representatives and subsidiaries around the world, Wibu-Systems has been serving its global clients with solutions that match their changing needs and the evolving nature of the digital realm and the threats within it. Its newest addition to the CodeMeter technology, CmCloud and CmCloudContainers, brings the popular protection and

licensing capabilities of its hardware CmDongles and software license containers to the cloud, with all of its unique abilities and security concerns.

Despite the airy and intangible vocabulary of data living in the clouds, the new digital age has a very solid and tangible side to it, one that is of particular salience for digital sovereignty: Connected industry and smart factories. As the digital revolution has disrupted old supply chains and is beginning to replace the monolithic manufacturing behemoths of old with new forms of manufacturing-as-a-service and new, agile producers vying for orders in the industrial IoT, industrial machines are no longer disconnected hulks of metal, but instead smart, connected, and ready to adjust their processes and output to each changing order, often sent to them from a product designer on the other side of the planet. Now that this vision of Industry 4.0 is becoming reality, connectivity again also means susceptibility to new threats and new attack vectors. Wibu-Systems has long played a leading role in powering the rise of the industrial IoT and connected industry, and has been supplying the world with both industry-grade versions of its protection hardware CmDongles, with formats ranging from classic USB dongles to



integrated ASICs, as well as a dedicated version of its CodeMeter solution for the embedded systems that make up the backbone of the industrial and non-industrial IoT. Wibu-Systems is also contributing substantially to new standards and concepts for a secure connected world, including pioneering work on new ideas of trustworthiness and chains of trust in digital enterprises. Many of these projects enjoy financial support from EU or German federal sponsors and are pursued with high-profile research institutions like the Fraunhofer Societ: A clear sign that politics, academia and industry have grasped the importance of home-grown digital and security expertise for digital sovereignty on a national, EU-wide and even global level.

Despite the global reach of its business and its outspoken commitment to interdisciplinary and international cooperation, Wibu-Systems also follows the ideas of digital sovereignty in its own business operations, as exemplified by the production and lab facilities on its new campus. Designed to be not only exceptionally environmentally friendly, but also highly secure and technologically forward-looking, the new production unit was designed with the aid of an innovative process and

architecture development approach that used such novel techniques as digital twins and virtual modelling to achieve the best laid out and most efficient manufacturing facilities possible. A model application of the DigiFab4KMU project, the facilities are a perfect example of the process design and automation potential afforded by new technology and a model for other small to medium-sized tech enterprises in the German-language region and the EU at large to follow. At the same time, the decision to retain its production operations at home – and supercharged with innovative technologies – gives Wibu-Systems full control over the security and quality of its wares, a factor near and dear to the company's heart and readily visible in the look and feel of its physical and software products.

What is happening in Karlsruhe is not only a story of regional excellence, but a case study of global significance in the search for true digital sovereignty. Far from being a return to isolationism, it represents a move towards sharing resources, assets and expertise in the truest sense of the term: Not monopolized or hoarded, but shared among many centers in a connected and multi-polar world. ☒

When software makes great products and services possible, CodeMeter provides:

- IP protection against reverse-engineering attacks
- Innovative business models for vendors and users
- Security-by-design for software and intelligent devices



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