

TRANSATLANTIC DIALOGUE ON THE INDUSTRIAL HEARTLANDS

PEOPLE-CENTERED INDUSTRIAL TRANSFORMATION

Lessons about Climate, Work, and Innovation from the American Heartlands

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ABOUT THE INDUSTRIAL HEARTLANDS FELLOWS

The Industrial Heartlands Fellows Working Group on Climate, Work, and Innovation comprises seven young professionals from the United States and Germany. As part of the "Transatlantic Dialogue on the Industrial Heartlands" project, we traveled to Pennsylvania, Ohio, and Michigan in October 2024, engaging with numerous organizations and individuals who are deeply involved in shaping the future of industrial heartlands. Our engagements provided valuable insights into the challenges and opportunities in these regions. This policy brief reflects on our findings, and aims to provide actionable recommendations for policymakers and change makers in both the United States and Germany. The report also serves as a precursor to our next phase of exploration—a trip through Germany's industrial heartlands in the fall of 2025.

This transatlantic initiative underscores the importance of collaborative efforts in addressing contemporary challenges in our societies.



ABSTRACT

A people-centered industrial transformation can serve as a unifying, nonpartisan cause for policymakers in the United States and Germany, ensuring that structural change benefits the majority while enhancing economic resilience. Industrial heartlands must leverage their existing infrastructure, skilled workforces, and industrial heritage to drive innovation and create well-paying jobs, particularly in energy and green technologies. Public—private partnerships, regional innovation clusters, and trade union support will be essential, as seen in successful initiatives like the Youngstown Business Incubator, which fosters entrepreneurship, workforce development, and techno-

logical innovation. Civic engagement models, such as Erie's Jefferson Educational Society, can help bridge partisan divides, while philanthropic capital and sovereign wealth funds can mitigate economic risks by reinvesting in key industries and community revitalization. By focusing on these strategies, industrial heartlands can become leaders in sustainable development, ensuring short-term economic benefits, long-term prosperity, and democratic resilience. By learning from U.S. experiences, Germany can compare and navigate its own industrial transformation while further promoting regional collaboration.

INTRODUCTION

Germany and the United States have pathways of continued economic and political growth within their former industrial heartlands. These regions hold important lessons from previous transformation, and offer best practices for the present and future of labor, innovation, and democratic resilience in communities once rooted in manufacturing and extractive industries. Drawing on field research between Erie, Youngstown, Pittsburgh, Dearborn, and Detroit, this policy paper offers perspectives grounded in the lived realities of local U.S. stakeholders.

From the perspectives of local business incubators and labor unions to those of former members of Congress and representatives of multinational corporations such as Ford, we delve into tangible examples that highlight the challenges and opportunities facing regions like the American Midwest. Together we ask: How can industrial heartlands steer the climate transition and safeguard communities and jobs while facing the pressure of global competition and a changing political landscape?

In the nexus of climate, work, and innovation, four main issues characterize our experiences during our U.S. trip:

changing political and economic landscapes; the challenges and opportunities in green tech; the need to manage a just transformation while maneuvering global competition; and how to achieve participation and prosperity for all. By learning from past transitions, in heartland regions we can also learn about and develop blueprints for sustainable and equitable growth nationally and globally. Through a transatlantic lens, we connect our insights to the future of Germany's industrial centers.

We present a roadmap with recommendations of actions to achieve a people-centered industrial transformation for policymakers tasked with shaping resilient, innovative, and sustainable heartlands in the medium to long term. Successful transformation of industrial heartlands requires a bipartisan approach in the United States and Germany. After years of polycrisis, the process of addressing the underlying structural changes needed in these regions has the potential to become a unifying, nonpartisan cause. Industrial heartlands can yet again become generators of prosperity, competitiveness, and democratic resilience.

CHANGING POLITICAL AND ECONOMIC LANDSCAPES

The so-called blue wall has shifted to a red wall with the election of Donald Trump. This marks a significant political realignment in the American Midwest, where traditionally Democratic-leaning areas have become solid Republican strongholds. Yet, even under a second Trump administration democratic governors and U.S. state legislators wield power on shaping the future of the industrial heartlands at the state level. The increasing concern over geopolitical and geoeconomic tensions and challenges facing the United States, Germany, and their trading partners or allies points to the significance of political stability for growth. Recent incidents of unprecedented interference by U.S. officials in German elections have prompted rising concern about shared norms in governance, sovereignty, trade, and more. The unexpected endorsements and interference by press and social media emerge at a time of rising competition between the West and China; division within and between the global South and liberal democracies; conflict in the Middle East; and the Russian war of aggression against Ukraine. These geopolitical and economic changes affect an already complex status quo in the heartlands.

The heartlands include many areas that have held profound legacies of transformation in recent decades. They now face new pressures from climate challenges and global economic shifts. The Trump presidency is likely to disrupt U.S. green transformation efforts, especially in industrial heartlands, where uncertainty for companies investing in green technologies might stall innovation and long-term planning. Throughout Western advanced economies, challenges such as low growth rates, inflationary pressures, rising inequalities, demographic shifts, and the politics of resentment—along with the allure of populist and authoritarian movements—are increasingly evident. These difficulties are particularly acute in regions grappling with the economic and political fallout



The Trump presidency is likely to disrupt U.S. green transformation efforts, especially in industrial heartlands, where uncertainty for companies investing in green technologies might stall innovation and long-term planning. of decades-long structural changes, labor market transformations, and deindustrialization, which have disproportionately harmed non-college-educated populations.

Policies that favor traditional energy industries could further slow the adoption of sustainable practices, while increasingly economic-nationalist stances may undermine global competitiveness by deterring talent and complicating trade relations vital for advancing green technologies. Despite the appeal of strategies like Trump's push for "energy dominance" as a path to economic stability, such approaches risk sidelining the critical, forward-looking initiatives necessary for industrial adaptation, underscoring the need for policies that promote resilience and sustainability across political divides. In the face of geopolitical and geoeconomic challenges posed by Russia, China, and other emerging BRICS, global competition is intensifying. The outcome of the U.S. presidential elections is a wake-up call for Germany in the context of the 2025 federal elections. Only by aligning transformation efforts with immediate as well as future benefits can policymakers effectively rally support for the necessary adjustments in the medium to long term. Managing this complexity remains a challenge in times of political fragmentation and increasing economic pressure and requires instruments and initiatives that have a direct impact on people's lives.

Considering the many transformations that most industrial heartlands have been going through over recent decades, we typically see a lot of innovative potential and promising initiatives to support future transformation. To build on this, we set out to assess and learn from best and failed practices that affect the future of labor, innovation, and resilience in communities once rooted in manufacturing and extractive industries. Overall, infrastructure and public services, both social and physical, directly influence quality of life and align with sustainable development goals. Without stable social support, meaningful transformation, innovation, and attention to climate challenges cannot occur. Communities with strong underlying services are better equipped to adapt to climate and innovation initiatives, ensuring they fulfill workforce requirements and educational outcomes essential for thriving in a modern economy. This holistic approach not only strengthens the community's economic base but also fosters resilience in the face of future challenges.

INVESTMENTS IN GREEN TECH | HARNESSING POTENTIAL FOR THE HEARTLANDS

During our visit to the American industrial heartlands, innovation was ongoing and structural change was visible. Thanks to Biden's industrial policies, federal funding was no longer a promise but already translated into real projects—a neighborhood non-profit in Erie, Pennsylvania, or an incubator lab in Youngstown, Ohio. However, the election of Trump—a climate change denier, with significant support from the American Heartlands—is a stark rejection of the climate protection agenda. Paradoxically, many of the industrial heartlands could still see their manufacturing sector revived through the development of a green economy and may continue to follow the path laid out by the Inflation Reduction Act, which supports green technologies through subsidies.

However, the second Trump administration endangers the progress made on green tech. There is rising uncertainty for companies regarding policies in favor of innovative green technologies, including a potential walkback on parts of the Inflation Reduction Act. Historically, entrepreneurship and natural resource exploitation have been at the core of the American Heartlands' economic development. This made it easy for recent populist narratives to foster grievances about environmental regulation, and managerial decisions to cut jobs were masked by blaming these changes on government-mandated environmental protection. Trump's newly created Department of Government Efficiency (DOGE) is likely to entail a massive erosion of environmental standards. Deregulation and downsizing of government institutions could further infringe their ability to oversee and implement effective environmental regulation. Moreover, the American industrial heartlands have historically benefited from attracting talent and labor from abroad. Already, the fact that many

Americans voted for a president who has announced mass deportations is deterring highly skilled individuals from abroad from considering the United States for work opportunities; the actual political implementation of many campaign threats may create even greater fallout for research centers and universities.

The industrial heartlands remain well positioned to benefit from green investments because of their robust infrastructure, abundant freshwater resources, strong university networks, and significant energy potential. While new industrial sectors introduce opportunities, they also rely on diverse materials, some of which must be imported, underscoring the need for a circular economy to mitigate ecological collapse. The green transition promises new jobs, but the trend toward less labor-intensive technologies is expected to persist, driven by automation,



The green transition promises new jobs, but the trend toward less labor-intensive technologies is expected to persist, driven by automation, digitalization, and AI advancements. digitalization, and AI advancements. These innovations will enhance efficiency but may reduce the number of manufacturing jobs, necessitating strategic planning to balance economic growth and workforce development.

Although there are numerous entry points for a successful green transition, emissions mitigation is often perceived in the American heartlands solely as a cost to businesses and a threat to workers; this is a narrative that must be reframed. A progressive alliance of policymakers and civil society leaders, informed by science, can connect industrial transformation and climate adaptation with the economic security needs of middle- and lower-income groups. To build acceptance for the green transition, region-specific investments and capacity-building initiatives must be paired with effective communication strategies that resonate with local communities.

GOULOS

Collaborative efforts between regions on specific technologies—such as additive manufacturing, also known as 3D printing, and advanced mechanics—can further drive innovation and strengthen shared economic and security frameworks. Herein, local, national, and city funding streams play a pivotal role in community engagement, enabling residents to survey their needs and build capacity. Bottom-up processes can significantly enhance the social impact of innovation policies, ensuring that the transfer and adoption of new technologies align with existing economic structures, for longer-lasting benefits. Altogether, these strategies can be a stronghold against backsliding and attacks from the national political level.

MANAGING TRANSFORMATION AND INTERNATIONAL COMPETITION

Pursuing economic profits by decreasing labor costs has been part of the survival strategy of companies in the industrial heartlands and elsewhere. Technological advancements are often characterized by the production of more and better units, faster, with less people. However, increasing demand can offset this downward employment trend if companies manage to be competitive. In global markets this can be difficult, especially when the rulesbased free trade order is undermined by hawkish subsidies, as is the case in the electric vehicle sector in China; this development already prompted non-WTO-compliant 100% tariffs by the Biden administration on all Chinese manufacturers, and lower, company-specific WTO-compliant tariffs by the EU, ranging from 9%–36%, following a formal anti-subsidy investigation.

Since his second election, Trump has repeatedly shown discontent with the U.S. negative trade balance with the E.U., and with Germany in particular, a notion that has already driven policy decisions in his first term. He has since threatened blanket tariffs for all non-U.S. automotive manufacturers and steel producers, including from Germany. Isolating the U.S. automotive market from international competition will not, however, secure economic prosperity in the medium term, as technologically underperforming goods are protected and countermeasures from trade partners will likely result, harming U.S. exports. Moreover, the proposed tariffs will likely lead to price hikes for a range of imported intermediate products, making the green transition ever more expensive for U.S. companies.

Taking into account the geopolitical pressures from autocracies such as China and Russia, democracies should strengthen their economic relationships rather than entangle themselves in a trade war. High-end manufacturing goods required for green tech production, such as batteries and semiconductors, should increasingly be ally-shored to like-minded countries that support the international rules-based order, with a mid-term goal of reducing the extensive dependency on China. However, under a second Trump administration, the transatlantic relationship may witness a growing linkage between economic and security concerns, with asymmetries in the latter being leveraged to secure more favorable trade conditions for the United States. Against this backdrop, there is also significant potential for regional transatlantic cooperation and international diversification.



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PUBLIC—PRIVATE PARTNERSHIPS TO EDUCATE FOR THE JOBS OF TOMORROW

As industries across Germany and the United States increasingly integrate automation into key sectors such as automotives, logistics, manufacturing, and healthcare, it is crucial that both private companies and public institutions work together to preserve accessible, well-paying jobs, particularly for workers in lower-skilled positions. Learning from the industrial heartlands in the United States, the German government must take proactive, forward-looking steps to strengthen social safety nets and labor policies, ensuring workers are supported through comprehensive reskilling and upskilling programs. By promoting a model of coexistence between automation and labor, policymakers can help protect workers' livelihoods, facilitate smooth transitions to new roles, and prevent displacement from both current and future employment. This approach will be essential to ensuring that Germany's industrial transformation benefits all workers, while maintaining the country's commitment to social welfare and economic fairness.

For this transformation to succeed, the government, institutions of higher education, and the private sector must collaborate to establish localized innovation hubs tailored to the unique needs of each region in Germany, much like successful models seen in the United States, such as the Youngstown Business Incubator (YBI) or Penn State Behrend's Innovation Commons and the "Innovation Beehive." Both the YBI and the Innovation Beehive originated from government and private funding, and they support entrepreneurs and startup businesses by providing resources such as product development support, access to capital, and access to expert guidance in specific areas. Across the heartlands in Germany and the United States, these hubs should foster adaptive, region-specific solutions for automation and technological advancement. Additionally, as companies transition to higher levels of automation, it is essential that workers are directly and

democratically involved in shaping the digital transformation strategies.

This will ensure that digital infrastructure and skill-building opportunities are accessible to all workers and that they are active participants in the process. To support this, training programs must be subsidized by federal, state, and private entities, ensuring that all workers can access the necessary resources to thrive in a digitally advanced economy. Moreover, these located innovation hubs should partner with educational institutions to create tailored curricula and apprenticeship programs that equip the next generation of workers with the specialized skills needed for emerging industries, fostering a pathway of talent that aligns with regional economic needs. We learned that essential resources—such as fund-

ing, equipment, and education—must be accessible, ideally facilitated by public—private partnerships that act as intermediaries.

UNIONS AND THEIR ROLE IN COMMUNITY BUILDING

Manufacturing workers' unions and entrepreneurs on both sides of the Atlantic will have to navigate the changing economic and political landscape and lay out plans for a transformation that is not only rapidly required because of the transgression of planetary boundaries but is also already in full swing, as big economies have already shifted course for good. Hence, although the fossil industries may coexist for a while with the renewable and green tech sector, a hard look at the facts signals that future global economic dominance likely hinges on leading the dual transition—the development of climate-neutral and digital products, including AI applications. Unions thus need to focus on shaping the period of industrial change and possible redistribution of assets and jobs, realizing the promise of a just transition that centers efforts on the prosperity of the working class.

As one union leader in the American heartlands put it, "You don't solve the climate crisis with software." Green technologies also require hardware, and skilled workers who can produce and install applications—something that the industrial heartlands have always been good at. Disinformation campaigns and narrative-setting around green technologies, such as wind power, electric vehicles, or heat pumps, have inhibited the broader formation of an industrial identity and pride around these technological innovations. Overall, however, the preconditions for the development of a strong green tech industry in the American heartlands are favorable: large water reserves, remnants of old infrastructure, lots of space, and comparably cheap energy and land, as well as a strong higher education landscape to lead and shape industries.

Trade unions have a vital role in ensuring that jobs and investments remain anchored within the community, while continued funding supports these efforts. Targeted innovation policies must create jobs that are sustainable in the region, focusing on how innovation can benefit the "ordinary worker." It is essential not only that jobs and investments materialize but also that they remain in the community in the long term. Unions can play a crucial role in educating for the jobs of tomorrow and being a provider or facilitator bridging gaps in knowledge and resources. Unions across Germany and the United States have a crucial and ongoing role to play in shaping the future of work, particularly as automation transforms industries. From advocating for reskilling and retraining programs to ensuring a fair transition for workers, they must remain at the forefront of these changes.

Unions will be essential in monitoring and addressing inequalities, fostering social dialogue, amplifying the voice of workers, and pushing for government action to protect workers' rights. Local union leaders are uniquely positioned to bridge the gaps between employers, workers, and policymakers, helping to create a future where automation not only drives greater productivity but also strengthens the local and national economy while safeguarding the well-being of workers. Job reskilling must account for the specific mindsets associated with different professions. For instance, tradespeople often value working with their hands and creating tangible products, which may make them less comfortable transitioning to desk jobs. Unions can play a vital role in identifying alternative jobs that align with these preferences and skills. Additionally, unlocking the potential of individuals and communities, particularly in low-income regions, is a significant opportunity. Investing in upskilling and similar initiatives can foster economic resilience and create pathways to meaningful employment.

RECOMMENDATIONS FOR A PEOPLE-CENTERED INDUSTRIAL TRANSFORMATION

Contrary to the assertions of the current polarized debate, a people-centered industrial transformation can be a unifying, nonpartisan cause on both sides of the Atlantic. This will require continuing investments in the heartlands' physical and social infrastructure to unleash innovative powers, providing for good jobs while tapping the potentials from green technologies. By a people-centered transformation, we mean:

• Identity- and experience-driven employment of tomorrow

Building on the existing pool of workers and upskilling workers in cooperation with trade unions and civil society where it is needed, in order to create a shared sense of identity and provide locals with good working opportunities and secure futures.

• Locally rooted innovation leadership

Boosting innovation and value creation through cooperative economic development, which is designed and implemented by public and private stakeholders and anchor institutions, such as universities, that leverage the local potential of workers, businesses, and industries.

Purpose-driven investments in green technologies

Focusing public investments on industries of the future that have the potential for economic growth and productivity gains in the transition to a carbon-neutral economy. Achieving this will take the combined efforts of actors at the local, federal, and international levels. A people-centered industrial transformation in the heartlands can become a renewed blueprint for democratic participation and economic growth in times of uncertainty. This is necessary for advancing competitiveness, prosperity, and democratic resilience in areas of our societies where regional imbalances have intensified. Our recommendations address national policy and change makers, as well as local leaders in the United States and Germany.



1. IDENTITY AND EXPERIENCE-DRIVEN EMPLOYMENT OF TOMORROW

Recommendation on heritage, identity, and inclusive economic growth: Manufacturing and industrial roots shape regional identity and generational memory, especially in former industrial heartlands. Economic shifts have left many communities struggling, with those who have remained often feeling excluded from revitalization; their experiences, along with existing infrastructure, can serve as a foundation for renewal. Inclusive economic growth requires living-wage jobs with benefits that address "kitchen table" issues central to working-class families. Without such opportunities, economic hardship and social discontent will persist. Therefore, to ensure meaningful revitalization, these individuals must help shape policies. In both the United States and Germany, local voices and industrial heritage must be incorporated to make economic strategies more effective and resonant.

Recommendation on trade unions: Unions are a vital part of the local social infrastructure in former industrial regions, providing stability and continuity amid economic shifts. As communities face rapid technological changeincluding advances in AI and automation—unions must adapt and reinvent their image to remain relevant. Not only are they key in upskilling and reskilling workers to meet the demands of emerging industries, but they also serve as essential social networks. With their institutional capacity to connect workers, employers, and policymakers, unions act as critical hubs for information exchange, workforce development, interest mediation, and community renewal. Their deep-rooted networks facilitate partnerships with technical training centers, community colleges, and regional innovation initiatives, ensuring that workers are equipped for the future. Moreover, local union representatives bring firsthand experience of past industrial transformations into policy debates at national and international levels, offering valuable insights into effective support mechanisms. By leveraging their ability to train workers, bridge political divides, and align local needs with broader policy frameworks, unions can help ensure that industrial transformation is both socially inclusive and economically sustainable in the face of rapid technological change.

Recommendation on economic/civil society forums: Another recommendation to support local democracies and foster growth through enhanced social infrastructure is to create bipartisan forums that facilitate dialogue on environmental, economic, and social priorities. These forums can strengthen democratic practices and effectively address local needs. A strong example of this approach is the Jefferson Educational Society in Erie, Pennsylvania. By connecting local and national leaders, hosting workshops and programs, and developing leadership cohorts, the society has successfully fostered civic engagement and built trusted networks. This model shows how organized, facilitated conversations can bridge partisan divides and empower communities to collaboratively address urgent issues. Such forums have the potential to establish vital channels that connect local, regional, and global challenges with opportunities and best practices.

2. LOCALLY ROOTED INNOVATION LEADERSHIP

Recommendation on innovation clusters: Certain areas in industrial heartlands struggle to retain talent and adapt to emerging industries, risking further decline in a technology-driven, sustainable economy. While innovation is often concentrated in major metropolitan areas, smaller industrial cities possess untapped potential to drive locally rooted economic renewal. Policymakers should address this by fostering local innovation and job growth through regional innovation clusters that focus on specific industries and product segments, such as renewable energy or advanced additive manufacturing. These clusters should leverage regional strengths and identities while creating new economic opportunities through targeted incentives that attract small and medium-sized businesses and integrate the R&D capacity of regional universities. Technical assistance and workforce development centers—co-established by universities and labor unions can train workers for high-paying, accessible skilled jobs, positioning industrial heartlands as drivers of economic transformation rather than passive recipients of external investment. In a next essential step, it is vital to transfer R&D findings into commercialization and scalability by engaging investors within these clusters, ensuring that innovative breakthroughs translate into sustainable, scalable economic growth.



While innovation is often concentrated in major metropolitan areas, smaller industrial cities possess untapped potential to drive locally rooted economic renewal. Recommendation on philanthropic capital, publicprivate, and public-institutional partnerships: In connection with the aforementioned need for investments, private philanthropy and civic leadership should be encouraged to address gaps where public sector support may be limited. Foundations with significant endowments, such as those inspired by Carnegie, can support local initiatives. However, the ethos of "no one is coming to save you" underscores the necessity of bottom-up leadership, where local communities take charge of their own revitalization efforts. In places like Youngstown, Ohio, residents have reclaimed blighted properties, transforming them into affordable homes, storefronts, or community assets such as parks. These grassroots efforts demonstrate how empowering communities to lead their own renewal fosters resilience, enhances long-term value, and builds thriving, self-sustaining environments. Building on this model, a comprehensive initiative akin to the "Marshall Plan for Middle America" could provide a blueprint for revitalizing industrial heartlands. In Germany, such a strategy could encourage regional policymakers to combine private philanthropy with civic and institutional partnerships—uniting local mayors, research institutions, and community leaders-to develop innovative, community-driven solutions and stimulate sustainable economic growth.

3. PURPOSE-DRIVEN INVESTMENTS AND GREEN TECHNOLOGIES

Recommendation for climate policies: As industrial heartlands in the United States and Germany transition toward a carbon-neutral future, communities face the challenge of balancing long-term environmental goals with immediate, tangible economic benefits. While outlining any long-term vision for a carbon-neutral future, policymakers should prioritize communication and policy initiatives that emphasize regional sovereignty and short- to medium-term economic benefits for the average voter. Concrete examples include estimating average income gains per capita, promoting decentralized energy solutions like rooftop community solar gardens or communal wind parks, highlighting job creation in key sectors, breaking down federal and regional investment funds at a per capita level, and advertising education and job programs in low-income neighborhoods.

Recommendation for hedging national and regional risk: In light of growing global risks such as tariff wars and the potential breakdown of the WTO rules-based order, regions in both Germany and the United Statesespecially former industrial heartlands-face significant vulnerabilities. To hedge these risks and bolster national resilience, policymakers should consider strategies that support local industries while addressing national priorities. One promising approach is to establish a sovereign wealth fund that reinvests public funds in order to prevent key industries such as automotives or steel from relocating, simultaneously promoting environmental, economic, and social goals and redistributing gains to citizens. Additionally, to further insulate regional economies from external shocks, efforts should focus on regional diversification and ally shoring-strengthening ties with regional partners and diversifying supply chains. This comprehensive strategy offers a future-proof industrial pathway that mitigates destabilizing global risks while reinforcing geopolitical and economic ties.

Recommendation on green tech industrial policy: Industrial heartlands in the United States and Germany are at a crossroads: needing to modernize their economic bases while navigating the continuing global green transition. Leveraging the potential of land, resources, infrastructure, and skilled labor can enable these regions to position themselves as leaders and role models in this shift. Investments in electric vehicle and battery production, as well as semiconductors, are poised to generate positive spillover effects that will modernize not only these key sectors but also the broader regional economy. Therefore, policymakers should create incentives and targeted industrial strategies to fully leverage this potential. Regions need to be clear and consistent in their planning to maintain competitiveness in an increasingly dynamic global market.





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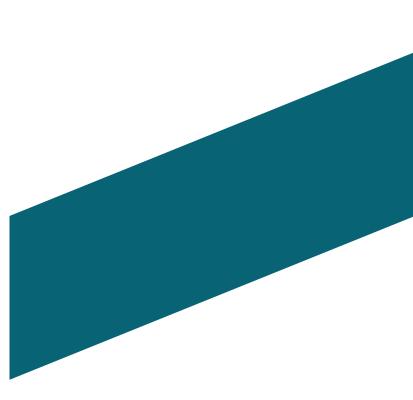
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