**Milestone 1 - Market research phase**

1. **Suggest the probable business impact of each independent feature on the target**

**Gender:**

Gender may result in biased loan approval decisions many times, leading to a negative impact on women borrowers. If the loan approval process is biased in terms of gender this could result in fewer loan being approved towards biased gender and it lead to slower growth and reduced profitability.

Gender diversity in loan approval team help for fair practice on loan approval process and it help for better transparency as well as help to achieve good profit for organisation.

So, it is important for organisation to do decisions based on objective criteria for loan process.

**Married:**

Impact of Independent feature Married on loan approval status can vary depending on specific context of the business and the target audience. I will discuss Positive, Negative as well no impact scenario here,

1. Positive Impact: Being married applicant can indicate stability and responsibility in eyes of lenders. In some cases, married individuals may be seen as lower-risk borrowers, which could increase the likelihood of loan approval.
2. Negative Impact: If the target audience consists of unmarried individuals, using marital status as factor while deciding loan eligibility could loss potential customers and harm the business’s reputation.
3. No Impact: In some cases, marital status may not be relevant to loan. For example, if the loan given is for a business or any investment purpose like for business etc the borrower’s marital status may not be a significant factor in determining their ability to repay the loan.

So, it is important for business to consider the potential impacts of marital status based on target audience, type of loan for which purpose loan is given to customer.

**Dependents:**

Impact of the “Dependents” feature on loan approval status depend based on context of business and the target audience. Let me discuss some of the impact like positive impact as well as negative impact.

1. Negative Impact: The number of dependents can impact the borrower’s ability to repay the loan. If the borrower has high number of dependents, they may have less disposable income available to repay the loan, which could increase credit risk of customer.
2. Positive Impact: in some case, loan is taken for some purpose like for education or medical treatment for dependents, having dependents may indicate sometimes that borrower has strong motivation to repay the loan considering it have reliable source of income to support their family as well as pay loan EMI.
3. No Impact : if loan is taken for business or any investment purpose , borrower’s number of dependent may not be a significant factor in determining their ability to repay the loan.

**Education:**

“education” on loan approvals status has significant impact. Some possible impacts are discussed here:

1. Education level can be seen as an indicator of financial stability and earning potential of any person. Applicants with higher level of education may have better job opportunities and higher incomes, that are more likely to be able to repay loan.

Overall, it is important for business to consider the potential impacts of education on loan approval which deciding on loan eligibity of applicant.

**Self-employed:**

“Self-employed” feature has significant negative as well as positive impact on loan approval status. I will discuss some of impact here:

1. Positive Impact: self-employment can be seen as a positive factor since it may indicate that the borrower has higher level of financial independence and control over their income. in some cases, self-employed individuals may have higher incomers and better financial management skills that make them to repay loan.
2. Negative Impact: self-employed can be seen as higher risk for lenders since self-employed individuals may have irregular or unpredictable incomes that may lead towards uncertainty for repay loan and make higher likelihood of default on the loan.

**Applicant Income:**

Below are some of business impact of Applicant Income on loan approval:

1. Higher income levels can be seen as indicator of financial stability and the ability to repay the loan. Applicants with higher incomes may have better credit scores and higher likelihood of being able to make timely payments on the loan
2. In some cases, some applicants have higher incomes with large amount existing debt or financial obligations , it is important to not give loan to such borrowers.

**CoApplicantIncome:**

Below are some of business impact of **CoApplicantIncome** on loan approval:

1. The Income of co-applicant can be added to the applicant’s income, increasing the total income and making it more likely that the loan will be approved when co-applicant has stable income and good credit score/
2. Let use discuss some negative impact also: if co-applicant has a low income or a poor credit score this could actually harm the loan application make it less likely to be approved.

So lenders should carefully consider the income and credit scores of both the primary applicant and any co-applicants before making a decision on loan approval.

**Loan Amount:**

Below are some of business impact of Loan Amount on loan approval:

1. Higher loan amount may indicate that the borrower has a greater need for funds and the loan will be used for significant expense. Also, in some case it may suggest that applicant has higher level of financial stability and that lead to higher ability to repay the loan.
2. A very high loan amount may indicate that the borrower has a higher risk of default , as they may struggle to make timely payments on loan. It is important to see leading limit criteria of business also to check feasibility of loan approval where loan amount is very high.
3. In some cases, loan amount may not be relevant to loan approval. For example, if the loan is for a short-term expense such as a medical bill, the loan amount may not be a significant factor in determining the borrower's ability to repay the loan.

It is important to consider that lenders should carefully consider the borrower's financial stability and ability to repay the loan before approving a loan for a higher amount.

**Loan\_Amount\_Term:**

“Loan\_Amount\_Term” on loan approval status have significant amount of impact as discuss below:

1. A longer term may make it more feasible for the borrower to make timely payments on the loan , as the payments will be spread out over a longer period of time .
2. A longer loan term may also mean that borrower will end up paying more in interest over the term of the loan , which make loan less attractive to borrowers.

**Credit History:**

“Credit History” on loan approval status have significant amount of impact as discuss below:

1. This feature provides information about creditworthiness of applicant. Like past this person take any loans also or not.

**Property Area:**

Property Area is significant feature while deciding loan eligibility of applicant. As it provides information about the borrower’s location and the value of the property being used as collateral. Let me discuss some probable impact here:

1. Borrowers from urban or semi urban areas are more likely to receive loan approval as property rates in these areas tend to be higher and stable and make it more attractive as collateral. Also, borrowers from there area have better access to financial resources and stable income sources that led to make repay loan easy.
2. Borrowers from rural areas may have a more difficult time securing loan approval as property values in these areas tend to be lower and more volatile making less attractive customer choice for customers.
3. **Suggest ways in which the organization can benefit as a result of analysing the data**

I will discuss some of benefits to organization for analysing the data for loan eligibility.

1. **Improved risk assessment:** Analysing data related to loan eligibility can help organizations to better assess the risk of potential borrowers and make more informed decision about to whether to approve or deny loan applications. This can help organization to reduce the likelihood of default rate and minimize losses due to non-performing loan given to borrowers.
2. **More efficient loan processing:** Analysing data related to loan eligibity can help organizations to streamline loan processing effectively and reduce time and resources required to evaluate loan application. This can help organizations to process loan applications more quickly and efficiently that led to better customer experience and reducing likelihood of losing potential customer to competitors.
3. **Enhanced customer targeting:** Analysing Data related to loan eligibility can help organization to understand needs and preferences of their target customers that allowed to tailor better loan products for their customer and that will lead towards meeting customer demands. As a result, organizations may likely to attract and retain their customers and that help to increasing their revenue and profitability over a time.
4. **Improved compliance:** Analysing Data help organisation to ensure that their loan approval policies and practices are compliant with relevant laws and regulation and this will help organization to avoid any legal and regulatory issue and penalties. It also helps to get more trust as a result of better transparency and customer will get more confidence and trust on organization.
5. **Suggest missing features that can help with the analysis based on business logic**

Here are some of potential missing features with their explanation how they impact on loan approval status:

* 1. **Age:** Age can be an important factor in analysing customer worthiness. As younger borrowers may have less financial stability and less credit history.
  2. **Number of open credit lines:** Borrowers with multiple open credit lines may have higher risk of default as they may be overextended in terms of credit and may struggle to pay
  3. **Loan-to-value ratio:** The loan-to-value ratio is a measure of the amount of the loan compare to the value of collateral used to securing loan. A higher loan-to-value ratio may indicate a higher risk of default.
  4. **Payment History :** A borrower’s payment history on previous loans or credit can be strong predictor as it indicate likelihood to default on a new loan
  5. **Purpose of loan :** Purpose of loan can also have impact on deciding loan . Let me take one example here , loan taken for higher-risk purposes such as debt consolidation or for business , start-ups may carry higher risk of default.
  6. **Total debt:** The borrower’s total debt including all outstanding loans and credit can be an important in assessment for new loan.

1. **What is the best way to collect data for the suggested features?**

Here is how can we collect data for suggested above features:

* 1. Features like Age can be get from applicant birth date while taking such data when applicant apply for loan.
  2. Loan-to-value-ratio data can be collected through property appraisals, which involve an independent appraiser determining the current market value and property condition.
  3. Other way these data can be collected by using some valuation models which use recent property sales, local market trends as input while determining value.
  4. Loan -to-value ratio data may also be available from third party sources such as credit bureaus, property data providers, mortgage service provider.
  5. Purpose of loan can be gotten from borrowers which apply for loan.
  6. Total Debt, Number of open credit lines and payment history related data can be get from credit agency (example like CBIL, Experian).